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THE RÔLE OF TONE IN THE STRUCTURE
OF SUKUMA

by

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Thesis presented for the degree of Ph.D.

September 1956

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ABSTRACT

The demonstration of the rôle of tone in Sukúma may best be effected by treating the subject as a problem which centres round the assigning to units of tonal characteristics from which may be ~~deduced~~ ~~inferred~~ the tones heard in speech.

Certain general features of tonal behaviour found in lexical and grammatical elements of both nominal and verbal words are outlined in the first chapter, which also indicates some of the basic principles of the method of analysis employed.

Chapter II carries a stage further the discussion of problems of classification affecting the nominal which were introduced in Chapter I. Experimental tone groups are examined and discarded in favour of tone classes of a more specific nature. These in their turn are abandoned for a system of assigned tonal characteristics with no reference to definite tone classes.

From these investigations are adduced rules of tonal behaviour which when applied to selected samples enable further deductions to be made about their tonal characteristics.

Chapter III consists of an exposition of the tonal characteristics of verbal constituents of all kinds, both grammatical and lexical. In it questions concerning the verbal already broached in Chapter I are discussed at length in an attempt to show the part played by each constituent in the aggregate tonal characteristic of a verbal.

A similar function is performed for nominals and their constituents

by Chapters IV and V, the former dealing with grammatical and the latter with lexical components.

It can be concluded from this treatment that, once a correlation has been established between essential characteristics and the tones heard in speech, a large part of the tonal behaviour of the language can be reduced to regular though complex patterns.

INTRODUCTION

Ki-Sukúma is spoken by about 900,000 Ba-Sukúma who live in Tanganyika between the south-east corner of Lake Victoria and Lake Eyasi. Their southern neighbours are the Ba-Nyamwesí. Those members of the tribe who have been less subject to external influences prefer to call their language Ki-Gwè, but both this term and Ki-Sukúma are in general use. Sukúma and Nyamwesí are so closely related that they are mutually intelligible, especially where they border on each other. Each language has several dialects.

This ^{work} thesis is based on examples gathered from the speech of one informant, Mr. Tryphon Wagi, at the School of Oriental and African Studies, London. He was born at Ng'hunhu (Maswa District, Lake Province) and brought up at Ntuzu in the same district. Before coming to London he was educated at Sayusayu (Maswa District), Nyegezi (Mwanza District) and at the Ihungo Teachers' Training College (Bukoba District).

It will be noted that this ^{work} ~~thesis~~ contains no bibliographical section. This omission is intentional since there are no literary works of any value which contain material on the tonal characteristics of Sukúma. Previous works either make no mention whatsoever of this subject or else scarcely deal with it at all.

Experience has shown that if tone is disregarded, this does not make Sukúma entirely unintelligible. Nevertheless it is the purpose of this ^{work} thesis to demonstrate that tone forms an essential part of

the structure of the language.

The tonal characteristics of Sukuma present many problems which are not self-evident and which may be expressed in different ways according to the interpretation of the data. For present purposes the problem is to establish the tonal characteristics of the units in such a way that they can be quoted in a grammar and vocabulary, and the actual tones heard in speech can be inferred by means of rules of tonal behaviour that are not too complicated to apply.

The method of expounding this problem is to select facts to illustrate the extent to which the tonal features of the language can be systematised within its general structure. It is not feasible to explain either the method of investigation or the basis on which the selection of the facts is made. Some tonal features have proved not to be amenable to systematisation e.g. the behaviour of particles, and consequently no mention will be made of these areas of the language.

Since the aim ~~of this thesis~~ is to produce selected facts from which the rôle of tone in the language can be established, examples are given in the clearest possible form. Consequently, they are not quoted in a narrow phonetic transcription which, in addition to being unnecessary for the present purpose, might even confuse the issue. All examples are represented by means of an orthographic device which enables their tone patterns to be indicated.

It is also for the sake of clarity that examples are quoted with neutral intonation, i.e. they have no over-riding tone pattern

associable with a particular implication or emotion, e.g. interrogation, emphasis, surprise, scorn, dismay. It is clearly unlikely that such examples are of common occurrence apart from the very limited context in which they were collected.

In dealing with the rôle of tone in Sukíma it is impossible, even were it desirable, to avoid referring to various other linguistic features. To prevent the disruption of the main theme by observations of this kind on topics of incidental importance, they have been relegated to appendices. It is recommended that the appendices dealing with the representation of orthographic and tonal features be read before proceeding to the main body of the ^{work} thesis.

CHAPTER I

Certain concrete problems emerging from the comparison of various items of data.

It is possible to form some idea of the tonal structure of some Bantu languages after a cursory examination of the tone patterns of examples taken down from speech. The tonal distinctiveness¹ of their words is obvious from the briefest of investigations since their patterns are always constant and do not change with the context.

The situation in Sukúma is totally different, and it is here that the main problem of tonal analysis lies. Only the most detailed and thorough examination will reveal the rôle played by tone in the structure of the language, since tonal contours² vary extensively according to context.

In order to classify words according to their T.D. they must be observed in rigorously controlled contexts. This implies firstly that items should be observed in contexts which are comparable in every relevant detail, i.e. shape, grammatical and syntactic status, and tonal characteristics. Secondly the items themselves should be comparable. A further important principle of tonal analysis demands that only one element of the items which are being compared should be

-
1. tonal distinctiveness (abbreviated to T.D.) - the sum total of the tonal characteristics of a given word or element as inferred from its behaviour in all contexts.
 2. tonal contour (abbreviated to T.C.) - the actual pattern a given word or element has in a given context.

commuted at a time. If the process is one of substitution of whole words, then only one word of the example should be substituted at once.

Two main contexts are necessary for Sukuma tonal analysis:

Context 1. Item + following word.

Context 2. Preceding word + item + following word.

In Context 2 the presence of a following word is rendered necessary by the special T.C.s which occur when the item is in final position in a sentence. It is for this reason that isolation is often an inadequate context.

Items can be classified only by their aggregate tonal behaviour in these contexts. This process is exemplified in Section I below.

I The T.D. of nominal words.

(a) In Context 1 items fall into two main groups:

A Words whose extended tonal contour¹ differs according as the characteristics of the following word are different, e.g.

batemj 'chiefs', badugu 'relatives', bakóma 'lepers',
miúbu 'kind of tree' (pl.), ginhj 'owl'

B Words whose E.T.C. remains constant whatever the following word, e.g.

talá 'lamp', góodj 'poll tax', migómba 'husks of banana
palm', balimj 'cultivators'

1. extended tonal contour (abbreviated to E.T.C.) - in a given context the tonal contour of a word in addition to any external tonal manifestations directly associable with the presence of that word.

(b) In Context 2 items once more fall into two main groups:

- 1 Words whose T.C. varies according as the characteristics of the preceding word are different, e.g.

batemj 'chiefs', badugu 'relatives', bakóma 'lepers',
balimj 'cultivators', migómba 'husks of banana palm'

- 2 Words whose T.C. remains constant whatever the preceding word, e.g.

talá 'lamp', góodj 'poll tax', mjúbu 'kind of tree',
ginhj 'owl'

(c) By combining the results of these two sets of tests, items may be grouped thus according to their behaviour:

A 1 batemj, badugu, bakóma

A 2 mjúbu, ginhj

B 1 balimj, migómba

B 2 talá, góodj

Thus of the four groups B 2 is the only one which contains words whose T.C. remains constant regardless of context. It is therefore the only group in which the T.C. of a word regularly indicates its T.D. All the words encountered in this group have zero prefix, i.e. although these words require a certain definite pattern of grammatical agreement they themselves have no audible prefix.

In the three other groups the T.D. of a word is shown by T.C.s which differ according to the context in which it occurs. It is only by observing these different T.C.s that the T.D. of the word

may be inferred.

(d) Although these tests have enabled us to place the items in four categories according to their T.C.s, it is not possible to predict the T.C.s of items contained in Categories A 1, A 2 and B 1 without knowing a great deal more about the tonal structure of each item and of the words which are found with it in context.

Discussion of this problem will be resumed at greater length in Chapter II.

II The T.D. of verbal radicals.

(a) While it is important to observe verbals in both the above contexts, they do not present so many problems in Context 2 as do nominal words with regard to their radicals. The reasons for this are indicated in Chapter III which deals more exhaustively with the tonal structure of the verbal than is possible at this juncture.

(b) When discussing verbals it should be noted that simplex and complex bases¹ must be treated separately since they present different

-
1. simplex and complex bases - A simplex base is one containing a simplex radical, just as a complex base contains a complex radical.

A simplex radical has the shape -C1VC2- in which either C1 or C2 may be zero and V may be long. C2 may not however be (i)-C, (ii)-j or (iii)-f, since these are realisations of (i)-k, (ii)-l, -z, -g and (iii)-s in C2 position when followed by the causative extension -j-

Complex radicals have the shape -CVC- + other elements. They are of two kinds:

- (a) those in which the radical element -CVC- can be associated with a simplex radical; these are called extended radicals.
- (b) those for which no associated simplex radical is known to exist.

Verbal extensions are lexical components found between radical and suffix. They modify the meaning of the radical and their own meanings can be established by subtraction or comparison. They may occur singly or in combination with other extensions.

problems as is shown by these examples in Context 1.

- | | |
|--------------------------|----------------------------|
| (i) akasola sagala | akabona sagála |
| 'he chose carelessly' | 'he saw imperfectly' |
| (ii) akasolela sagala | akabonelá sagala |
| 'he chose (for someone) | 'he looked for (something) |
| carelessly' | carelessly' |
| (iii) akasolanija sagala | akabonaníja sagala |
| 'he chose at the same | 'he saw at the same time |
| time carelessly' | imperfectly' |

As can be seen, the commutation of the radicals -sol- and -bon- corresponds to a difference in T.C.s although the shape of the radical changes from -CVC- to -CVCVC- and -CVCVCVC-. In each case the distinction is shown in a different manner. Thus, while the -sol- forms are spoken at normal level in (i), (ii) and (iii), the -bon- forms have high speech tones on the second syllable of sagala in (i), and on the second syllable after -bon- in (ii) and (iii).

(c) The T.D. of radicals is not apparent in all tenses however. Sometimes the T.C. or E.T.C. of a certain tense is constant and does not reflect the tonal distinctions between radicals observed in other tenses, e.g.

- | | | | |
|-----|---------------|-------------------|-------------------------|
| (| akasola banhu | 'he chose people' | |
| { | akabona banhú | 'he saw people' | |
| but | (| asóle banhú | 'let him choose people' |
| | { | abóne banhú | 'let him see people' |

In the -ka- -a tense the tonal distinction between -sol- and -bon- is shown by the high tone on the second syllable of banhu when -bon- precedes. In the other examples the T.C.s are identical indicating that in this tense T.D. between radicals is not maintained.

III The T.D. of verbal constituents other than radicals or concord elements.

(The remarks in this section will be developed at much greater length in Chapter III, notably in Section IV)

(a) The assigning of T.D. to verbal constituents is a multifarious problem since the number of variables is so large. These variables consist of the dependent verbal prefix¹, the tense sign², the object substitute³, the radical and verbal extensions.

The E.T.C.s of verbals are liable to vary when any of these verbal constituents are commuted, with the exception of extensions of comparable size and shape. The T.D. of concord elements will be mentioned in the next section.

(b) When assigning T.D. to tense signs each tense must be treated as a separate problem and its characteristics investigated by commuting each constituent in turn with radicals of different T.D.

-
1. dependent verbal prefix (abbreviated to D.V.P.) - a concord element which agrees with the grammatical subject and is prefixed to all true verbals. It may appear in any class from 1 to 18.
 2. tense sign (abbreviated to T.S.) - the tense sign consists of a suffix and in most cases an infix.
 3. object substitute (abbreviated to O.S.) - a concord element which agrees with, and is generally substituted for, the grammatical object. It is found infixed in the verbal immediately before the radical. Another variety occurs after the verbal and for this reason is called the postposed O.S. Unless otherwise stated, the term O.S. should be taken to mean the infixed variety.

Some verbal constituents have tonal features which never vary when other constituents are commuted, e.g. the infix -láá- of the Future tense always has high tone:

aláásola	aláábona + h
baláásola	baláábona + h

Similarly the infix -ka- of the Past tense (yesterday) is always heard at normal level:

akasola	akabona + h
bakasola	bakabona + h

(c) Variable E.T.C.s are common and are especially characteristic of verbals with simplex radicals as already mentioned in Section II of this chapter. Nevertheless, factors other than the length of the radical have to be taken into account since in some tenses there is always a variable E.T.C. however long the radical, e.g.

{ uabona mahágala	'he saw tree forks'
{ uabona másymbi	'he saw stools'
{ uabonanija mahágala	'he saw tree forks simultaneously'
{ uabonanija másymbi	'he saw stools simultaneously'

(d) Since an identical type of E.T.C. may occur when the radical is not normally associated with such behaviour, it must in this case be ascribed to something other than the T.D. of the radical, e.g.

uasola mahágala	'he chose, etc.'
uasola másymbi	" " "
uasolanija mahágala	'he chose, etc. simultaneously'
uasolanija másymbi	" " " "

IV The T.D. of concord elements.

It is intended here merely to introduce in the briefest and most general terms several of the problems which will be developed later in Chapters 2, 3 and 4. In an Appendix entitled 'Concord Elements', lists of the different series¹ are given.

(a) Concord elements found in nominals.

The principal nominal concord elements may be classified as dependent² or independent, single or double³ prefixes.

There are two main problems:

(i) Single and double prefixes, whether dependent or independent, are associated with different types of tonal behaviour, e.g.

akabona ma-hágala

'he saw tree forks'

akabona áma-hagala

'he saw the tree forks'

In the first example where the I.P. is single a h tone attributable to the preceding word is heard on the second syllable of mahagala.

-
1. The complete range of any one type of concord element as it occurs throughout the grammatical classes is termed a series.
 2. A dependent prefix (abbreviated to D.P.) is one which with a given nominal is commutable with all other members of its series. A prefix with a limited range of commutability is called an independent prefix (abbreviated to I.P.).
 3. Double prefixes are so termed because of their shape in relation to the single variety. Both types may be found in either dependent or independent series. The double variety has more definite implications than the other. In nominals with an independent prefix (abbreviated to independent nominals) the difference in meaning between single and double prefixes may broadly speaking be correlated with the difference between 'a' and 'the' in English.

In the second example where the I.P. is double this h tone appears on the first part of the double prefix.

(ii) There are two series of D.P.s and one of I.P.s. The I.P. series and one of the D.P. series have the same tonal characteristic in all classes, but the second D.P. series has a tonal quality that varies with grammatical class, e.g.

Cl.1.	mynhu u-apí	mynhu u-aza
Cl.2.	banhu ba-apí	banhu bá-aza
	-apí 'black, dark'	-aza 'red, light- skinned'

(iii) The features indicated under (i) and (ii) are found in combination in double D.P.s of the second series as the following examples show:

	Cl.3	Cl.4
Single	{ mkono gu-apí mfuko gu-apí	{ míkono yí-apí mífuko yí-apí
Double	{ mkono úgu-apí mfuko ugu-apí	{ míkono íyí-apí mífuko iyí-apí

To illustrate these two kinds of tonal distinction it is essential to observe the dependent nominal (i.e. a nominal with a D.P.) when preceded by words which do not have the same tonal quality such as m-kono/mí-kono 'arm/arms' and m-fuko/mí-fuko 'bag/bags'. In this connection it should be noted that in identical contexts m-kono and mí-kono are always followed by h tone while in some cases

m-fyko and m_ifyko are not.

Thus although the tonal distinction mentioned under (ii) is not apparent between the single D.P.s of Classes 3 and 4 when they follow m-kono/m_i-kono, it is quite clear after m-fyko/m_i-fyko, the dependent nominals in this case having the T.C.s gu-ap_i/y_i-ap_i.

The different tonal behaviour of double prefixes referred to under (i) can be seen on comparing the examples in which m-kono or m_ikono precede the single and double D.P.s. It will be noted that in both Cl.3 and Cl.4 the first part of the double prefix has a h tone. The remainder of the word shows the same distinctive T.C.s for Classes 3 and 4 as it did in both single and double prefix forms when preceded by m-fyko/m_i-fyko.

(b) Concord elements found in verbals.

These consist of D.V.P.s and O.S.s, both of which may cause the tonal quality of a verbal to vary according to their grammatical class.

(i) Dependent verbal prefixes.

In most tenses the tonal quality of verbals varies with the class of these elements. The following typical examples show how the T.C.s of verbals in Cl.1 differ from those in Cl.2, and that this distinctiveness is maintained when the radicals have different tonal associations as have -sol- and -bon-.

Cl.1 mtem_i á-kusola

mtem_i á-kubona + h

Cl.2 batem_i ba-kusóla

batem_i ba-kúbona + h

'the chief(s) will choose'

'the chief(s) will see'

(ii) Object Substitutes

The tonal quality of verbals varies according to the grammatical class of the infixed object substitute as is shown by the T.C.s of the following examples:

aka-ku-sola 'he chose thee' (2nd pers. Cl.1)

aka-my-solá 'he chose you' (2nd pers. Cl.2)

It is worthy of note that in certain tenses the presence of an O.S. is also correlated with the occurrence of a feature in the T.C. that can be associated with the T.D. of the radical, whereas if there is no O.S. such features are absent.

In the examples asóle + h 'let him choose', abóne + h 'let him see' there is no indication that the radicals -sol- and -bon- are tonally distinct. When the O.S. -ga- is infixed in these forms however the T.C.s show that these radicals have different tonal characteristics, e.g.

a-ga-sóle + h 'let him choose them'

a-ga-bone + h 'let him see them'

CHAPTER II

The development of some of the problems mentioned in Chapter I. -
An attempt to assign to the constituent units of nominals tonal
characteristics from which can be inferred the tones heard in
speech.

I. Tone groups and the T.D. of nominals

An attempt was made in Section I of the preceding chapter to classify nominals according to their aggregate tonal behaviour in relevant contexts. This led to the establishment of four tone groups A1, A2, B1 and B2.

It was pointed out however that with the exception of the T.C.s of words listed under B2, the tones heard in speech cannot be inferred from these groups. This is because the words which they contain do not behave in the same way in all contexts, due to the fact that the criteria used to establish the groups were not sufficiently specific.

In order to assort words into completely distinct tonal classes, all different varieties of behaviour must be classified separately. It is not enough simply to observe whether in certain circumstances the T.C.s and E.T.C.s vary. It is absolutely essential to note the form which these variations take. When this has been done, an attempt must be made to assign these differences of T.C. to the constituent units of the word.

It is evident that words originally placed in the same tone

group differ greatly in their tonal characteristics. This will be demonstrated by examining typical members of each group in turn in comparable contexts.

(a) A1

(i) A common feature of words of this group is that when they precede bataale 'big' (Cl.2) a h tone¹ is always heard on its second syllable, e.g.

batemj batáale

badugu batáale

bakóma batáale

(ii) Here the similarity between the tonal characteristics of these three words ends however as the following examples show:

akabona bátemj batáale

akabona badúgu batáale

akabona bá!kóma² batáale

1. Although bakóma has a h tone on the first syllable, like batemj, when preceded by akabona, it has to be classified differently because, regardless of context, it has an invariable h tone on -kom-.

2. batemj and badugu must be placed in different tonal categories because after akabona the former has a h tone on the first syllable and the latter on the second syllable.

1. represented here as a high falling tone, the usual realisation of h tone on a long vowel, see Appendix 'Tone Marks'.

2. For the significance of the superior exclamation mark see Section IIa of this chapter.

3. In final position both bakóma and badugu have an extra low tone on the last syllable while batemj has not, e.g.

akabona bátemj.

akabona badúgù.

akabona bá!kómà.

Thus these three words belong to three different categories.

(b) A2

(i) There is a strong superficial resemblance between the tonal behaviour of the two words which exemplify this group.

1. Both are followed by h tone when they occur with -taale, e.g.

Cl.4 mǐúbu mǐtáale

Cl.9 gĩhĩ ntaalé

The apparent difference between the T.C.s of mǐtáale and ntaalé is due to the different syllabic value of the D.P.s (see the Appendix 'Syllables - Prefix Shape'). In each case h tone is heard on the second syllable of the dependent nominal.

2. When these words are preceded by the verbal akabona it has a h tone on its suffix, e.g.

akaboná mǐúbu mǐtáale

akaboná gĩhĩ ntaalé

(ii) On closer examination however the following differences will be noted:

1. mǐúbu has an invariable rising tone which will have to be classified differently.

2. A difference in T.C.s occurs when these words follow uabonaga 'he used to see', mǐúbu being preceded by h tone while gǐghǐ is not, e.g.

uabonagá mǐúbu mǐtáale

uabonaga gǐghǐ ntaalé

3. When these words occur in final position their T.C.s are again different, mǐúbu having an extra low tone on the last syllable while gǐghǐ has not, e.g.

akaboná mǐúbù.

akaboná gǐghǐ.

(c) B1

(i) The tonal behaviour of balimǐ and mǐgóm̐ba is similar in the following respects:

1. Neither is followed by h tone when they occur with -taale, e.g.

balimǐ bataale

mǐgóm̐ba mǐtaale

2. The T.C. of both words varies according to the nature of the preceding word, e.g.

akasola balimǐ bataale

akasola mǐgóm̐ba mǐtaale

but

akabona balím̐ba bataale

akabona mǐ'góm̐ba mǐtaale

(ii) There are striking differences however.

1. *mígómba* will have to be classified differently as it has an invariable h tone.

2. Although h tone is heard on both words when they follow *akabona*, the h tone associable with the preceding word appears on the second syllable of *balimj* and on the first syllable of *mígómba*, as can be seen from the above examples.

(d) B2

(i) As already noted, the words in this group behave in a similar manner in that they all have invariable T.C.s, e.g.

<i>talá ntaale</i>	<i>akabona talá ntaale</i>
<i>góodj ntaale</i>	<i>akabona góodj ntaale</i>

(ii) This does not mean however that they have the same T.C.s. Indeed the wide variety of T.C.s which are to be found amongst members of this group renders categorisation not only difficult but ineffective.

It will thus be necessary to adopt a classification which takes into account all the relevant details of the different varieties of behaviour which a closer examination of the tone groups has revealed.

II The T.D. of the constituents of independent nominals.

This section contains further observations on tonal behaviour in the above examples, leading to an attempted correlation of some of the T.C.s with the T.D. of their constituents.

(a) There appear to be three main levels of tone: high, normal and low.

Subsidiary mid-tones have been marked as high (e.g. akabona bá!kóma batáale, and not akabona bákóma batáale), the difference in level being treated as a feature of the junction of two high-tones. It is indicated by a superior exclamation mark and is referred to as "tone slip"¹.

(b) Some tones are constant in all contexts.

(c) A h tone associable with a preceding word may occur on the first or second syllable but never later².

(d) The independent nominal prefix seems to have no tonal distinctiveness since the same prefix may bear either high or normal tone according to context and the radical with which it is used, e.g.

akabona bátemi	batemi.)	) T.C. in isolation
akabona balími	balimi.)	
akasola batemi		
akasola balimi		

(e) Nominal radicals³ have various tonal associations. It has already been shown that the radicals of batemi and balimi are tonally

1. see M. Guthrie, Bantu Languages of Western Equatorial Africa, p.10.

2. Initial vowels and the nasals of initial nasal compounds are treated as forming part of the preceding syllable at a word junction. (See the Appendix entitled "Syllables").

3. A nominal radical is that element of a nominal which corresponds to the radical in associated verbals. By extension this same term is used for the comparable part of other nominals where no such association is known to exist.

distinct. In the examples:

batemj batáale

balimj bataale

the presence or absence of a h tone on bataale can be regularly correlated with the commutation of the radicals -tem-, -lim-.

Thus -tem- has high and -lim- normal tonal associations.

To facilitate the discussion of the T.D. of constituent parts, the high tonal association will be referred to as $[H]$ or essential high tone, the constituent in question being underlined thus:

batemj. balimj will be said to have a $[N]$ tone radical.

Similarly where constant tone is encountered in a radical this will be indicated by the symbols (H) or (N).

(f) Suffixes may be either $[H]$ or $[N]$, (H) or (N), e.g. in some respects badugu behaves like balimj since both may be spoken with a h tone on the second syllable. But badugu is followed by a h tone while balimj is not:

akabona badúgu batáale

akabona balímj bataale

Furthermore, in final position these nominals have the following patterns:

akabona badúgù.

badugù.)

akabona balímj.

balimj.)

) T.C.s in isolation.

Thus while the radical of badugu has the same T.D. as that of balimj, i.e. it is $[N]$, the T.D. of its suffix is $[H]$.

In the words talá and góodj can be seen suffixes which are tonally invariable, i.e. (H) and (N) respectively.

III Tone Classes.

Returning to the examples quoted when the original tone groups were established, it is now possible in the light of the observations just made to assign to the constituent units tonal characteristics on which can be based tone classes the members of each of which are homogeneous.

On comparing T.C.s it will be noted that some constituents regularly display the same features as others. From this it can be deduced that they have the same kind of T.D. Thus [H] T.D. can be assigned to the suffixes of bakóma and mjúbu because their behaviour resembles that of the [H] suffix of badugu. They are followed by h tone, and when in final position they are spoken on an extra low tone.

It is not proposed to describe in detail the method used in assigning T.D. to nominal constituents since this is beyond the scope of this work. Its main principles however are implied in the foregoing observations.

Below are listed the original tone groups with their examples. These have now been analysed, the T.D. of their constituents being indicated by symbols which are explained in the appendix on tone marks.

			<u>Radical</u>	<u>Suffix</u>	
<u>A1</u>	Prefix	+	[H]	[N] ¹	batemj
	Prefix	+	[N]	[H]	badugu
	Prefix	+	(H)	[H]	ba.kóma ²
<u>A2</u>	Zero	+	[H]	[N]	ginhi
	prefix		(NH)	[H]	miúbu

The constant rising tone symbolised by (NH) is heard partly on the prefix which coalesces with the (H) radical vowel in this case, - see the Appendix "Syllables - Prefix Shape"

<u>B1</u>	Prefix	+	[N]	[N]	balimj
	Prefix	+	(H)	(N)	mi.gómba.
<u>B2</u>	Zero	+	(N)	(H)	talá.
	prefix				
	Zero	+	(HN)	(N)	góodj.
	prefix				

This is by no means an exhaustive list of all the possible combinations of different varieties of T.D. There are, for example, many polysyllabic nominals belonging to group B2. These present such a variety of constant T.C.s that for practical purposes further classification would be useless. There would be more sub-classes than could conveniently be incorporated into the system. The same

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1. There is no means of distinguishing between [H] radical + [N] suffix and [H] radical + [H] suffix.
 2. bakóma and not bakóma since in final position the suffix is spoken on an extra low tone - see Tone Rule 4 below.

is true to a lesser degree of the other tone groups.

Indeed, as can be seen from the examples quoted, such is the nature of Sukuma tonal structure that the analysis of the T.C.s of some of its independent nominals has produced not so much a manageable system of tone classes, as an enumeration of the different combinations into which elements with various kinds of T.D. may enter.

Under these circumstances all that can be done by way of analysis is to assign T.D. to the constituents marking them in such a way that the symbols may serve the same purpose as the letter or number which indicates a tone class in other languages. From these symbols it will be possible to infer the tones heard in speech by applying the following rules of tonal behaviour.

IV Rules of tonal behaviour.

1. Certain elements not associated with the presence of a high tone in the following word can themselves bear a high tone. Conversely those elements associated with [H] or (N) tone can never bear a high tone.

2. High tone associated with a [H] element in a preceding word occurs on the second syllable of the word unless a [H] or (H) or (N) element intervenes.

When a [H] element intervenes the high tone is heard on the first [N] syllable which immediately precedes it, e.g. akabona bátemi.

When a (H) or (N) element intervenes however, the high tone is heard on the preceding syllable whether it be [H] or [N], e.g.

uabonagá .talá.

3. When no other word follows, [H] elements are realised in speech with normal tones, e.g. batemí. This is also true when a [H] element is immediately followed by other [H] elements, e.g.

uabonaga gínhi.

4. When monosyllabic [H] elements occur in final sentence position they are realised at an extra low level, e.g. badugí.

V Deductions which can be made regarding the T.D. of nominal constituents by applying the above tone rules to selected samples of Sukúma.

(a) akabona bábití batáale 'he saw tall passers-by'.

akasola babití batáale 'he chose tall passers-by'.

It will be noted that the T.C. of babití is different in the two examples. The h tone on ba- may be associated with the presence of akabona since no h tone occurs after akasola. Thus the prefix ba- is [N] since it may bear a h tone associable with the preceding word. Had it been [H] it would have been incapable of this type of behaviour (Rule 1). As the tone of ba- is not constant, by definition it could not be (H) or (N).

The presence of h tone on the initial syllable is however unusual. In other cases h tone occurs on the second syllable of a word following an item with [H] associations unless a [H], (H) or (N) element intervenes (Rule 2). This fact taken together with the presence on bataale of a h tone which is associable with the

preceding word enables [H] T.D. to be ascribed to -bit-.

(b) akaboná talá ntaale 'he saw a big lamp'.

akasola talá ntaale 'he chose a big lamp'.

As the T.C. of talá remains constant whether preceded by a [H] or [N] word, and as no h tone occurs on ntaale, it will be preferable to regard the T.C. of talá as not amenable to analysis. For this reason the tentative division suggested in Section III under "Tone Classes" into (N) + (H) will not be adopted, but instead the whole contour will be treated as fixed and shown symbolically as (NH)¹. The presence of h tone on akabona may be attributed to the [H] behaviour of -bon- which is prevented from manifesting itself anywhere else since it is followed by a word with a fixed contour.

(c) Regarding Tone Group A2, although the T.C. of such words as mjúbú is the same regardless of the nature of the preceding word, there is strictly speaking no need for a sign such as those used with words which have a fixed T.C., since this fact can be inferred from its shape². For the sake of uniformity however the symbol has been retained.

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1. It may be noted that all words of this type have zero prefix, although as can be seen from Section III, not all words with zero prefix belong to this category.
 2. When a nominal stem with a constant T.C. begins with a vowel, its independent prefix always has a normal tone in speech, e.g.

akaboná.	míátja	mítáale	'he saw big <u>myatja</u> plants'
akaboná.	míandú	mítaale	'he saw big baobab trees'

CHAPTER III

Tonal characteristics of verbal constituents.

It is more difficult to assign tonal characteristics to the constituents of verbals than to those of nominals, as there are more factors affecting T.C. to be taken into account in verbals. Furthermore, as has been stated in Chapter I although verbal radicals have a T.D. of their own, in some forms this distinctiveness is never maintained. The "dependent" tense — -e is an outstanding example of this failure to preserve T.D. Taking two radicals which are tonally distinct: -sol-[N] 'choose' and -bon-[H] 'see', the 3rd person forms of Cls. 1 and 2 exhibit identical E.T.C.s, e.g.

vasóle + h, basóle + h

abóne + h, babóne + h

The T.D. of a verbal is determined by that of its radical, but is also considerably modified by the tonal characteristics of its other constituents. Thus as has already been observed, there is a basic cleavage between verbals with [H] radicals and those with [N] radicals. In each of these two main types there are further categories of tonal behaviour according to the T.D. of the verbal concord elements — the D.V.P. and O.S. (if any) — and also according to the T.D. of the tense sign and the presence or otherwise of verbal extensions. The tense sign consists of a suffix and in most cases an infix.

The T.D. of the radical plays so important a part in the T.D. of the verbal that the characteristics of this constituent will be considered first of all. Thus the entire tonal structure of the Sukuma verbal may then be built up step by step on the dual basis of [N] and [H] radicals.

I T.D. of radicals

(a) The T.D. of verbal radicals can be established only by examining verbals of comparable shape. It would for example be useless to attempt to draw any conclusions from a comparison of the T.C.s of two verbals having radicals of the shape -CVC- and -CVVC-; or -CVC- and -VCVC-. Differences of shape such as these would involve a difference in the number of syllables in each member of the comparison. Since Sukuma tonal structure rests largely on the syllabic value of the constituents of a word, failure to choose words of comparable shape when observing tonal behaviour would falsify the evidence and render it inamenable to systematisation.

In the examples which follow, [N] radicals are arranged on the left and comparable [H] radicals on the right. Each radical is quoted twice, firstly as abstracted from the independent nomino-verbal or "infinitive" form ku- -a [N] (C1.15), and secondly as it would occur if preceded by a [H] element such as a [H] object substitute and followed by [N] elements. The symbol [H] → indicates a preceding [H] element while + h shows that in suitable circumstances the item quoted will be followed by h tone. There is a further convention

that an acute accent after the radical denotes that a h tone will be heard on a [N] suffix in this position. These devices have been adopted so as to avoid the irrelevant problems of lexical incompatibility which arise when the more usual test words or elements may not be employed with the verbal radical under investigation.

	[N]		[H]
-CVC-	-sol- 'choose'		- <u>bon</u> - + h 'see'
	[H] → -sol'-		[H] → - <u>bon</u> - + h
-CVVC-	-kaab- 'divide'		- <u>laal</u> - 'sleep'
	[H] → -káab-		[H] → - <u>laal</u> -
-CVCVC-	-lagal- 'drop'		- <u>tonol</u> - 'pluck'
	[H] → -lagál-		[H] → - <u>tonol</u> -
-CVVCVVC-	-gaagaan- 'bustle about'		- <u>baabáat</u> - 'grope one's way'
	[H] → -gáagaan-		[H] → - <u>baabáat</u> -
-CV-	-sɿ- 'grind'		- <u>su</u> - + h 'spit'
	[H] → -sɿ'-		[H] → - <u>su</u> - + h
-VC	-ib- 'forget'		- <u>ib</u> - + h 'steal'
	[H] → -ib'-		[H] → - <u>ib</u> - + h
-VCVC-	-alul- 'dress up'		- <u>ogoh</u> - 'fear'
	[H] → -alúl-		[H] → - <u>ogoh</u> -
Nominal Associates	-baatalal- 'go flat' (associated with the nominal -baata = 'flat')		- <u>tendehál</u> - 'contract elephantiasis' (associated with the nominal i-tende = 'elephantiasis')
	[H] → -báatalal-		[H] → - <u>tendehál</u> -

	[N]	[H]
¹ Contoured	None found	-pilingít- 'roll along'
		[H] → -pilingít-

(b) The following points arise from these examples.

(i) The T.C. of the [N] radicals always changes when a [H] element precedes.

(ii) The [H] radicals always have the same T.C. or E.T.C. whether preceded by a [H] element or not.

This basic difference has been used as a criterion by means of which items have been classified under the heads of [N] and [H].

(iii) Verbals whose radicals have [H] T.D. are not necessarily followed by h tone. If there are enough [N] syllables after the [H] radical, h tone is heard two syllables later in the verbal itself.

(iv) Before the evidence contained in these examples could be systematised, the following two rules had to be formulated to enable the number of syllables in any given radical to be ascertained.

1. Verbal radicals with long vowels count as two syllables for tonal purposes.

This rule enables the T.C. of such items as [H] → káab- to be inferred from the T.D. of its constituents in the following manner. Since -kaab- has the value of two syllables, h tone associable with the preceding [H] element will be heard not on the suffix, which

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1. In some Bantu languages there are sets of verbal radicals which may be related to each other by their shape and meaning. These are termed contoured radicals. Thus the example -pilingít- 'roll along' is a member of a set of radicals with the pattern -CVlVnCVt-, in which the three vowels must be of like quality. All the radicals with this particular type of pattern are verbs of motion with implications of rolling, trundling, bowling along.

would be three syllables later, but on -kaab- itself. It is a characteristic of long vowels that h tone realised on them is heard on a high falling tone.

Similarly since -laal' has the value of two syllables, the h tone on the suffix can be attributed to the realisation of the [H] T.D. of the radical two syllables later. Using this rule as a basis, the T.C.s of all radicals with long vowels may be inferred from their constituents. Also dependent on this rule are [N̄] -CV radicals which combine with a [N̄] suffix vowel and can be classified as -CVV verbal bases with the value of two syllables, e.g. [H] → sɛa 'grind'.

2. When coalescence occurs between a radical beginning with a vowel and the vowel of a preceding constituent, the coalescing elements each have the value of one syllable unless both have [N̄] T.D.

This rule has been formulated so that the T.C. of verbals whose radicals begin with a vowel may be inferred from their constituents. Thus in the conventionalised item [H] → -ib' which may be exemplified by ku-ga-ib-á (pronounced kugiibá) 'to forget them' (Cl.6), the h tone may be associated with the [H] element which precedes it by two syllables.

Similarly by applying this rule to the item [H] → ib- + h, e.g. ku-ga-ib-a + h 'to steal them' (Cl.6), the actual T.C. can be inferred as distinct from the purely theoretical T.C. *ku-ga-ib-á. The latter is based wrongly on the rule that a radical with a long vowel (-ku-giiba) has the value of two syllables, regardless of the fact

that this long vowel has two components.

3. In this connection it should be pointed out that although several [H] elements may be juxtaposed in a given word, only one subsequent h tone is heard. Its incidence is associable with the last of the [H] elements, i.e. it occurs two syllables after the last [H] element if the word is long enough. For this reason when attempting to infer T.C. from the constituents of a word, it is of the utmost importance to distinguish between two syllables which have two components as above in -ga-ib- + h, and two syllables with only one component as in the radical -laal- 'sleep'.

(c) A clearer impression of the categories of T.C. may be obtained by using the extended forms of these verbals. The extension -anij- which has the generalised meaning of 'simultaneously' was found to be the most suitable since it can be employed with any verbal without incongruity, and lengthens them by two syllables thereby providing ample scope within the verbal itself for the realisation of [H] elements, e.g.

kusola	[N]	'to choose'	kubona	+ h	'to see'
kusolanija	[N]	'to choose simultaneously'	kubonanija		'to see simultaneously'

It should be noted that in abstraction verbal extensions are tonally neutral. In context they have the same characteristics as the suffix with which they occur. This subject will be discussed more fully when tense signs (which include suffixes) are dealt with later in this chapter. For the time being items will be taken only

from those forms with a [N] suffix. The extensions will therefore be [N]. Below are listed the extended forms of some of the radicals previously quoted. They have been regrouped according to their T.C.s. No extended forms of Nominal Associates and contoured radicals are given since in their original form they are long enough to permit [H] elements to be realised on some part of the radical.

	[N]	[H]
-CVC- + extension	[H] → -solani ^j - [H] → -solá ^j ni ^j -	[H] → -bonani ^j - [H] → -boná ^j ni ^j -
- CVCVC- + "	[H] → -lagalani ^j - [H] → -lagá ^j lani ^j -	[H] → -tonoláni ^j - [H] → -tonolá ^j ni ^j -
-VC - + "	[H] → -ibani ^j - [H] → -ibá ^j ni ^j -	[H] → -ibaní ^j - [H] → -ibaní ^j -
-VCVC- + "	[H] → -alulani ^j - [H] → -alú ^j lani ^j -	[H] → -ogoháni ^j - [H] → -ogohá ^j ni ^j -
- CVVC- + "	[H] → -kaabani ^j - [H] → -ká ^j abani ^j -	[H] → -laaláni ^j - [H] → -laalá ^j ni ^j -
-CVVCVVC- + "	[H] → -gaagaanani ^j - [H] → -gá ^j agaanani ^j -	[H] → -baabáatani ^j - [H] → -baabá ^j atani ^j -
-CV- + "	[H] → -siani ^j - [H] → -sá ^j ni ^j -	[H] → -suaní ^j - [H] → -suaní ^j -

Once more the [H] radicals unlike the [N] ones have the same T.C. whether preceded by a [H] element or not. With the exception of those radicals containing long vowels the association between h tones and [H] elements is very striking. In each example h tone occurs two syllables after the [H] element whether the latter forms part of the radical or is a pre-radical component. The relationship is less obvious when there are long vowels, but as has been previously stated, it is quite regular if elements with long vowels are counted as two syllables.

It is worthy of note that the morphological status of those elements which follow the simplex radical or comparable part of a verbal, has no bearing on their tonal behaviour. These elements always behave like verbal extensions even when no simplex form of the radical is known to exist.

II T.D. of dependent verbal prefixes

As was briefly indicated in Chapter I, Section 4(b), T.C. varies according to the grammatical class of the D.V.P. in most tenses. It is proposed to illustrate this feature first with [N̄] radicals.

(a) With [N̄] radicals

(i) On examining the -ka- -a past tense of a [N̄] verbal with D.V.P.s of all persons in classes 1 and 2, two main types of tonal behaviour were observed. Examples are quoted first without and then with a preceding [H̄] element. In both cases it is assumed that [N̄] elements follow the verbal.

Class 1,1 na-kasola	[H̄] → nákasola
2 u-kasola	ú-kasola
3 a-kasola	á-kasola
Class 2,1 tu-kasola	[H̄] → 'tu-kasola
2 my-kasola	'my-kasola
3 ba-kasola	'ba-kasola

In the left hand column it will be noted that all items have the same T.C. When a [H̄] element precedes however, the three persons of class 1 have one T.C. and those of class 2 have another. Unlike the D.V.P.s of class 2, those of class 1 may bear a h tone associable with the preceding [H̄] element. As this is a characteristic of [N̄] T.D. as formulated in the rules of tonal behaviour in the previous

chapter, the D.V.P.s of class 1 can be said to be [N̄]. The above evidence is insufficient to warrant the attribution of [H̄] T.D. to class 2 D.V.P.s since failure to bear h tone is a feature of both [H̄] and (N) elements. The [H̄] T.D. of class 2 D.V.P.s is however clearly shown in the following examples in the -ku- -a Future tense.

Class 1, 1	na-kusola	[H̄] → ná-kusola
2	u-kusola	ú-kusola
3	a-kusola	á-kusola
Class 2, 1	<u>tu</u> -kusóla	<u>tu</u> -kusóla
2	<u>mu</u> -kusóla	<u>mu</u> -kusóla
3	<u>ba</u> -kusóla	<u>ba</u> -kusóla

The h tone on-sol- in the class 2 items is associable with the [H̄] T.D. of the class 2 D.V.P.s. The presence on the class 1 D.V.P.s of h tone which can be attributed to the preceding [H̄] element shows that they are [N̄].

(ii) There is however a difference between this type of T.D. and that on which the rules of tonal behaviour are based. Whereas in the more usual types of [N̄] / [H̄] T.D., in favourable circumstances h tone associable with a preceding [H̄] element occurs on the second syllable of the following word, in verbals of the kind illustrated it is always heard on the D.V.P. when this is [N̄]. This state of affairs pertains even when the tense infix too has [N̄] characteristics as exemplified above in the -ku- -a tense. In these examples the infix -ku- in no way prevents the realisation two syllables later of h tone due to class 2 D.V.P.s, but can never bear h tone associable with a preceding external element. This is a

feature of all [N] D.V.Ps. rather than of individual tense infixes. When however the tense infix is a vowel with [N] T.D., it coalesces with the D.V.P.; a preceding [H] element would then be realised as a level h tone on a long vowel thus produced, e.g., uasola + h 'he chose'; [H] → úásola + h. (pronounced wáásola).

In this connection it is noteworthy that although a [N] D.V.P. may consist of a single vowel or consonant it still has the value of a syllable as can be perceived from the realisation when preceded by a [H] element, e.g. mtemi ákasola. If the D.V.P. had coalesced with the preceding element to form a long [N] vowel and had thereby lost its syllabic value, h tone would be realised on it as a high falling tone as in [H] → batáale.

(iii) It was found that all D.V.Ps. in classes 1 to 15 fall into one or other of the above tonal categories as exemplified by classes one and two. These categories are maintained in most tenses. Below verbals are listed according to the T.D. of their D.V.P. To provide a clear picture of the behaviour of [H] D.V.Ps., examples are given in both the ka- -a and the -ku- -a tenses:

[N] D.V.Ps.		[H] D.V.Ps.	
Cl.1	[H] → á-kasola	Cl.2	[H] → 'ba-kasola
4	í-kasola	3	gu- "
9	í-kasola	5	li- "
		6	ga- "
		7	{ ki- "
		8	{ si- "
		10	ji- "
		11	lu- "
		12	ka- "
		13	tu- "
		14	bu- "
		15	ku- "
			ba-kusóla
			gu- "
			li- "
			ga- "
			ki- "
			si- "
			ji- "
			lu- "
			ka- "
			tu- "
			bu- "
			ku- "

For the sake of convenience in this and subsequent chapters, these groups of classes will be called 1,4,9 and Non 1,4,9. Classes 16, 17 and 18 are to a certain extent idiosyncratic and are dealt with separately under (d) in the present section.

(iv) The T.D. between D.V.P.s of classes 1,4,9 and Non 1,4,9 persists throughout the whole verbal system as can be seen from the following typical examples in which [N] and [H] T.D. is represented by items in classes 1 and 2 respectively.

1. It is found when verbals are extended:

<u>[N]</u> D.V.P.s (1,4,9)	<u>[H]</u> D.V.P.s (Non 1,4,9)
[H] → á-kasolanija	[H] → 'ba-kasolanija
[H] → á-kusolanija	[H] → ba-kusólanija

2. It occurs with radicals of all shapes:

<u>[N]</u> D.V.P.s (1,4,9)	<u>[H]</u> D.V.P.s (Non 1,4,9)
-CVC- [H] → á-kasola á-kusola	[H] → 'ba-kasola ba-kusóla
-CVCVC- á-kalagala á-kulagala	'ba-kalagala ba-kulágala
-VC- á-kaiba á-kuiba	'ba-kaiba ba-kuibá
-VCVC- á-kaalula á-kualula	'ba-kaalula ba-kualúla
-CVVC- á-kakaaba á-kukaaba	'ba-kakaaba ba-kukáaba
-CVVCVVC- á-kagaagaana á-kugaagaana	'ba-kagaagaana ba-kugáagaana
-CV- á-kasja á-kusja	'ba-kasja ba-kusja

3. T.D. of D.V.P.s is maintained in most tenses. The relationships between T.D. and T.C.s however often follow different patterns according to the tense in which they occur, as is shown in examples below.

Sometimes, as in tenses 3 and 4 (classes 1,4,9) and tenses 5 and 9 (Non 1,4,9) $\bar{[N]}$ / $\bar{[H]}$ distinctiveness is shown by fixed normal and high tones on the D.V.P. To facilitate identification and reference tenses have been numbered. These numbers have no other significance.

Tense No.	¹	1,4,9		Non 1,4,9
1	akasola	$\bar{[H]}$ → ákasola	bakasola	$\bar{[H]}$ → 'bakasola
2	akusola	ákusola	bakusóla	bakusóla
3	√u√asolá	'u√asolá	baasóla + h	baasóla + h
4	√u√asolága	'u√asolága	baasólaga + h	baasólaga + h
5	uasolaga + h	úásolaga + h	√bá√ásolaga + h	√bá√ásolaga + h
9	uasola + h	úásola + h	√bá√ásola + h	√bá√ásola + h

In these examples the T.D. of tense signs is not marked since this subject has yet to be discussed in Section IV of the present chapter.

(b) With $\bar{[H]}$ radicals

(i) It has been demonstrated that while the T.D. of D.V.P.s occurring with $\bar{[N]}$ radicals is a persistent feature it may assume different forms. The same situation is to be found in verbals with $\bar{[H]}$ radicals.

(ii) Taking classes 1 and 2 as representative of the two categories, it can be seen from the following examples in Tense No. 2 that with a $\bar{[H]}$ radical the T.D. of D.V.P.s is maintained in a similar manner to that already observed with $\bar{[N]}$ radicals.

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1. The meanings are as follows: 1. 'he chose' (yesterday), 2. 'he will choose' (in the near future), 3. 'he has just chosen', 4. 'he chose' (today), 5. 'he used to choose', 9. 'he chose' (long ago).
In tenses 3,4,5 and 9, it will be noted that the 3rd person of class 1 is u-. This is always the case before a tense infix beginning with a vowel.

1. It is found when verbals are extended and when they are not:

	1,4,9		Non 1,4,9
Simplex			
	a-kubona + h [H] → á-kubona + h		ba-kúbona + h [H] → ba-kúbona + h
Extended			
	a-kubonaníja á-kubonaníja		ba-kúbonaníja ba-kúbonaníja

2. It occurs with radicals of all shapes:

	1,4,9		Non 1,4,9
-CVC-	[H] → á-kubona + h	[H] →	ba-kúbona + h
-CVCVC-	á-kutonolá		ba-kútonolá
-VC-	á-kuíba + h		ba-kúiba + h
-VCVC-	á-kuogohá		ba-kúogohá
-CVVC-	á-kulaalá		ba-kúlaalá
-CVVCVVC-	á-kubaabáata		ba-kúbaabáata
-CV-	á-kusya + h		ba-kúsyá + h

3. It is also maintained throughout most tenses. In the examples which follow, the same tenses have been employed as those used with the [N] radical -sol-. The T.D. of tense signs is not marked.

Tense No.	1,4,9		Non 1,4,9
1	a-kabona + h [H] → á-kabona + h		ba-kabona + h [H] → 'ba-kabona + h
2	a-kubona + h	á-kubona + h	ba-kúbona + h
3	u-abona + h	'u-abona + h	ba-abona + h
4	u-abonagá	'u-abonagá	ba-abonága + h
5	u-abonaga + h	ú-ábonaga + h	ba-bá.ábonaga + h
9	u-abona + h	ú-ábona + h	ba-bá.ábona + h

(c) Multiple tonal distinctiveness

From the examples quoted it can be seen that in a given tense with verbals of comparable shape there is a system of T.D. depending on the grammatical class of the D.V.P.

At the same time the verbal radicals may be tonally distinct,

thereby constituting a multiple T.D. which can be symbolised thus:

<u>D.V.P.</u>	<u>Radical</u>	<u>D.V.P.</u>	<u>Radical</u>
1,4,9	+ [N]	Non 1,4,9	+ [N]
1,4,9	+ [H]	Non 1,4,9	+ [H]

The following verbals exemplify this situation:

<u>akusola</u>	<u>bakusóla</u>
<u>akubona</u> + h	<u>bakúbona</u> + h

or when preceded by a [H] element:

[H] → ákusola	[H] → bakusóla
[H] → ákubona + h	[H] → ba-kúbona + h

This illustrates a fundamental principles of T.D. in verbals, i.e. that the total distinctiveness of any form can normally be calculated by multiplying by two for each individual constituent. Thus in this case there are two distinctions for prefix and two for radical giving $2 \times 2 = 4$ distinctions.

(d) The D.V.P.s of classes 16,17 and 18

The tonal behaviour of these D.V.P.s seems not to be amenable to systematisation. It does not consistently resemble that of either the 1,4,9 or the Non 1,4,9 D.V.P.s. Moreover, in comparable contexts the D.V.P.s of these three classes sometimes fail to behave in conformity with each other as may be seen from the following examples. The tenses chosen have predictable tones when the D.V.P. is in any class other than 16,17 or 18. In these examples an acute accent placed immediately before the D.V.P. indicates that a h tone associable with the preceding [H] element is heard in this position.

Tense No. 2 -ku- [N̄] -a [N̄]

Cl.16	ha-kusolwa	[H̄]	→ 'ha-kusolwa) 'it will be chosen'
17	ku-kusólwa	[H̄]	→ ku-kusólwa	
18	my-kusolwa	[H̄]	→ 'my-kusolwa	

Tense No. 8 -ku- [N̄] -aga [N̄]

Cl.16	ha-kusolagwa	[H̄]	→ 'ha-kusolagwa) 'it is chosen' (habitually)
17	ku-kusólagwa	[H̄]	→ ku-kusólagwa	
18	my-kusolagwa	[H̄]	→ 'my-kusolagwa	

Tense No. 3 -a- [H̄] -a [N̄]

Cl.16	ha-asolwá	[H̄]	→ 'ha-asolwá) 'it has just been chosen'
17	ku-asolwá	[H̄]	→ 'ku-asolwá	
18	my-asolwá	[H̄]	→ 'my-asolwá	

Tense No. 4 -a- [H̄] -aga [N̄]

Cl.16	ha-asolágwa	[H̄]	→ 'ha-asolágwa) 'it has been chosen' (today)
17	ku-asolágwa	[H̄]	→ 'ku-asolágwa	
18	my-asolágwa	[H̄]	→ 'my-asolágwa	

(i) In the first two tenses classes 16 and 18 have similar E.T.C.s to those of verbals in classes 1,4 and 9 except that h tone is never heard on the D.V.P.s of classes 16,17 and 18. It is realised on the preceding syllable. This divergence may be ascribed to a difference in syllabic value between the CV shape prefixes of classes 16,17 and 18, and the vowel prefixes of classes 1,4 and 9.

(ii) In tenses 3 and 4, and also in several others not given, verbals in classes 16,17 and 18 behave consistently like those in classes 1,4 and 9.

(e) T.D. of the double D.V.P. of the Relative Verbo-Nominal

One type of relative construction consists of a verbo-nominal

which has no head-word¹ but which agrees with its antecedent by means of a double D.V.P. These verbo-nominals may occur in any tense and in any grammatical class except class 1.

Although the term double D.V.P. has been applied to this element, it should not be inferred from this that the tonal behaviour of the double D.V.P. ~~is identical with that of the double D.V.P.~~ is identical with that of the nominal double independent or dependent prefix. Indeed it is because of strikingly divergent tonal behaviour that this element has been treated as a variety of D.V.P. and not as a double nominal prefix. The distinctive behaviour of double prefixes as opposed to single prefixes will be dealt with in the appropriate sections of Chapter IV.

(i) 1. Double D.V.P.s of classes 2-15.

These exhibit T.D. of the 1,4,9/Non-1,4,9 variety, the former classes being [N] and the latter [H]. This T.D. centres round the second part of the double D.V.P. as the following typical examples show:

Cl.3	m-gunda	ugu-kusólwa	.....	'a field which will be chosen'
Cl.4	m ₃ -gunda	iyi-kusólwa	.....	'fields which will be chosen'
Cl.9	n-gobo	iyi-kusólwa	.....	'a hide which will be chosen'
Cl.10	n-gobo	iji-kusólwa	.....	'hides which will be chosen'

-
1. As the term implies a relative head-word initiates a relative clause. It belongs to a concord series and appears in the class of its antecedent. Verbals preceded by a head-word always have a single D.V.P. See Chapter IV Relative Head Word Series and Appendix - Concord Elements.

in which h tone on-sol- may be associated with the presence of a Non-1,4,9 double D.V.P.

2. Although beginning with a vowel, the double D.V.P. counts as two syllables for tonal purposes. In classes 4 and 9, h tones associated with a preceding [H] element is realised on the second part of the double prefix. It is in this respect that its behaviour diverges from that of double prefixes in nominals in these classes. In other classes h tone associated with a preceding [H] element is realised on the first part of the prefix. This behaviour is similar to that of double dependent nominal prefixes of Series II in corresponding classes (see Chapter IV).

The distinctiveness existing between double D.V.P.s of classes 4 and 9 and the remaining classes may be clearly seen in the following examples which are all preceded by [H] elements:

Cl.3	my-aka	úgu-kusólwa	'a year which will be chosen'
Cl.4	mi-aka	iyí-kusolwa	'years which will be chosen'
Cl.9	n-goko	iyí-kusolwa	'a fowl which will be chosen'
Cl.10	n-goko	íji-kusólwa	'fowls which will be chosen'

In each case h tone on the double prefix is associable with the preceding [H] element, but with classes 4 and 9 prefixes it falls on the second part while with other classes it is heard on the first part. The h tone heard on-sól- is of course associable with the [H] prefixes as in the previous set of examples.

3. When a tense sign with different tonal characteristics is employed T.C.s are again different. In the items quoted the tense sign -ka- is (N) with [N] suffix, and -láá- is (H) with [N] suffix. The examples are given in classes 3 and 4 which are typical of grammatical tonal distinctiveness. They are preceded first by

[N] elements and then by [H] elements, e.g.

Cl.3	[N]	→	ugu _✓ ka _✓ solwa	'which was chosen'
Cl.4	[N]	→	iyi _✓ ka _✓ solwa	'which were chosen'
Cl.3	[N]	→	ugu _✓ láá _✓ solwa	'which will be chosen'
Cl.4	[N]	→	iyi _✓ láá _✓ solwa	'which will be chosen'
Cl.3	[H]	→	úgu _✓ ka _✓ solwa	'which was chosen'
Cl.4	[H]	→	iyí _✓ ka _✓ solwa	'which were chosen'
Cl.3	[H]	→	úgu _✓ láá _✓ solwa	'which will be chosen'
Cl.4	[H]	→	iyí _✓ láá _✓ solwa	'which will be chosen'

(ii) The double D.V.P. of classes 16,17 and 18.

The double D.V.P.s of these classes do not behave consistently amongst themselves, neither do they fall satisfactorily into the two main tonal categories of 1,4,9 and Non 1,4,9:

While classes 17 and 18 behave as though [H], class 16 has the characteristics of a nominal [N] double prefix. It has h tone on the first part of the prefix when preceded by a [H] element and is not associated with subsequent h tone. The following examples show the behaviour of double D.V.P.s in these classes:

m ₃ .m-gunda	aha-kusolwa)	'in the field the place which will be chosen'
	uku-kusólwa		
	umy-kusólwa		
m ₃ .n-numba	áha-kusolwa)	'in the house the place which will be chosen'
	úku-kusólwa		
	úmy-kusólwa		

III. T.D. of object substitutes

There are two types of O.S., infix and postposed. Each type behaves in a totally different manner from a tonal viewpoint. They will therefore be dealt with separately.

(a) Infix O.S.

These remarks concern classes 1 to 15 only since there are no infix O.S.s in classes 16, 17 and 18 in Sukúma.

(i)

1. As with D.V.P.s, O.S.s of this type may be categorised according to their tonal behaviour, thereby introducing an additional factor into the T.D. of verbals in which they occur. The two categories into which they fall do not however consist of classes 1,4,9 and Non 1,4,9 with [N̄] and [H̄] T.D. respectively, as is the case with D.V.P.s. The only [N̄] O.S.s are those related to the three persons of class 1, i.e. -ni- 'me', -ku- 'thee', -n- 'him,her'. All other O.S.s, including the reflexive -i- 'oneself, itself' are [H̄]. Each [H̄] O.S. has the value of one syllable.

In the examples which follow, class 1 is represented by -ku- and the remaining classes by -ba- (class 2).

With [N̄] O.S.

aku-ku-sola

'he will choose thee'

With [H̄] O.S.

aku-ba-solá

'he will choose them'

The [H̄] T.D. of the O.S. in the right hand column is clearly shown by the h tone which occurs two syllables later. The fact that -ku- is a true [N̄] element and not (N) can be demonstrated by commuting the D.V.P. with the [H̄] prefix ba- (class 2), whereupon a h tone will appear two syllables later on the O.S. -ku- e.g.

baku-kú-sola 'they will choose thee'

It should be noted that with a [H̄] radical the T.D. of the O.S. is not observable in this tense, e.g.

aku-ku-bona + h
'he will see thee'
[H] → áku-ku-bona + h

aku-ba-bona + h
'he will see them'
[H] → áku-ba-bona + h

In Tense 3 however, and in many others, it is quite apparent, e.g.

√u√a-kú-bona + h
'he has just seen thee'

√u√a-ba-bona + h
'he has just seen them'

1. The O.S. for the 3rd person of class 1 -n- often appears to behave differently from the other class 1 O.S.s -ni- and -ku-, but this is due to coalescence with [N] elements resulting in the loss of a [N] syllable for tonal purposes, e.g.

Cl. 1 2nd person: baku-kú-sola 'they will choose thee'

Cl. 1 3rd person: baku-n-sóla 'they will choose him'

in which -ku-n- must be taken as one syllable if the h tone on -sol- is to be considered as the realisation of the [H] T.D. of ba- two syllables later.

A complete list of O.S.s will be found in the Appendix in the tables of concord elements and the three persons of classes 1 and 2.

(ii) Multiple distinctiveness

1. In any one tense the total distinctiveness of a verbal with infixed O.S. may be expressed in this manner:

2 distinctions for prefix

2 distinctions for radical

2 distinctions for O.S.

2 x 2 x 2 = 8

The following examples illustrate this situation:

	D.V.P.	With [N] radical	With [H] radical
With [N]	1,4,9	aku-ku-sola	aku-ku-bona + h
O.S.	Non 1,4,9	<u>baku-kú-sola</u>	<u>baku-kú-bona</u> + h
With [H]	1,4,9	aku-ba-solá	aku-ba-bona + h
O.S.	Non 1,4,9	<u>bakú-ba-solá</u>	<u>bakú-ba-bona</u> + h

2: This multiple T.D. is maintained whatever the shape of the radical as the following examples will show. It is of course just as necessary to observe radicals of comparable shape in this case as it is when investigating verbals without O.S.

-CVCVC- radicals

	D.V.P.	With [N] radical	With [H] radical
With [N]	1,4,9	aku-ku-solela ¹	aku-ku-bonela ²
O.S.	Non 1,4,9	<u>baku-kú-solela</u>	<u>baku-kú-bonela</u>
With [H]	1,4,9	aku-ba-soléla	aku-ba-bonela
O.S.	Non 1,4,9	<u>bakú-ba-soléla</u>	<u>bakú-ba-bonela</u>

-VCVC- radicals

	D.V.P.	With [N] radical	With [H] radical
With [N]	1,4,9	aku-ku-alula ³	aku-ku-ogohá ⁴
O.S.	Non 1,4,9	<u>baku-kú-alula</u>	<u>baku-kú-ogohá</u>
With [H]	1,4,9	aku-ba-alúla	aku-ba-ogohá
O.S.	Non 1,4,9	<u>bakú-ba-alúla</u>	<u>bakú-ba-ogohá</u>

-CVVC- radicals

	D.V.P.	With [N] radical	With [H] radical
With [N]	1,4,9	aku-ku-siiga ⁵	aku-ku-toolá ⁶
O.S.	Non 1,4,9	<u>baku-kú-siiga</u>	<u>baku-kú-toolá</u>
With [H]	1,4,9	aku-ba-síiga	aku-ba-toolá
O.S.	Non 1,4,9	<u>bakú-ba-síiga</u>	<u>bakú-ba-toolá</u>

-CVVCVVC- radicals

	D.V.P.	With [N] radical	With [H] radical
With [N]	1,4,9	aku-ku-gaagaana ⁷	aku-ku-dijimíla ⁸
O.S.	Non 1,4,9	<u>baku-kú-gaagaana</u>	<u>baku-kú-dijimíla</u>
With [H]	1,4,9	aku-ba-gáagaana	aku-ba-dijimíla
O.S.	Non 1,4,9	<u>bakú-ba-gáagaana</u>	<u>ba-kú-ba-dijimíla</u>

1. Kusolela 'to choose for someone' 2. Kubonela 'to find something for someone' 3. Kualula 'to dress up' 4. Kuogohá 'to fear'
 5. Kusiiga 'to slander' 6. Kutoolá 'to marry a wife'
 7. Kugaagaana 'to bustle about' 8. Kudijimíla 'hold tight'

$\frac{2}{3} = 15 \pm 4$

	D.V.P.	With [N] radical	With [H] radical
With	1,4,9	aku-ku-iba ³	aku-ku-iba ⁴ + h
[N] O.S	Non 1,4,9	<u>baku-ku-iba</u>	<u>baku-ku-iba</u> + h
With	1,4,9	aku-ba-iba ⁴	aku-ba-iba + h
[H] O.S	Non 1,4,9	<u>baku-ba-iba</u>	<u>baku-ba-iba</u> + h

	D.V.P.	-CV- radicals	
With [N] O.S.	1,4,9	With [N] radical	With [H] radical
With [H] O.S.	Non 1,4,9	aku-ku-l ¹ ya	aku-ku-k ² ya + h
	1,4,9	baku-kú-l ¹ ya	baku-kú-k ² ya + h
	Non 1,4,9	aku-ba-l ¹ ya	aku-ba-k ² ya + h
		bakú-ba-l ¹ ya	bakú-ba-k ² ya + h

(b) Postposed Object Substitutes

In addition to O.S.s which are infixed, there is a complete series of monosyllabic O.S.s which always occur after the verbal and are sometimes preceded by the non-concordial element na-. Strictly speaking this kind of O.S. does not form part of the verbal as the infix variety does, yet it cannot be regarded as totally separated from it. It is for this reason that a full stop is placed between it and the verbal when they closely adjoin. The whole series is listed among the concord elements in the Appendix.

(i) Although the series extends through all the classes from 1 to 18, the tonal characteristics of its members are identical in that, where circumstances permit, they are followed by h tone two syllables later, e.g.

akasika.ko sagála. 'he arrived there in a dishevelled state'. In final position they are realised on a low tone, a feature which characterises [H] monosyllables, e.g.

akasika.kò. 'he arrived there'. The following examples in classes 9,10 and 17 have been specially chosen to show that (a) there is no T.D. between classes 1,4,9 (represented by class 9) and the others, (b) although classes

1. Kul¹ya 'to fight 2. Ku²ya 'to pay bride price'.

3. kuiba 'to forget' 4. ku¹iba [H] 'to steal'

16,17 and 18 sometimes behave differently from each other and also from classes 1,4,9 and Non 1,4,9, in this series as is shown by the class 17 items (which are typical of classes 16 and 18) they exhibit the same tonal behaviour as all other classes.

(Class 9: akasola.yo + h	'he chose it'
(Class 10: akasola.jyo + h	'he chose them'
(Class 17: akasola.ko + h	'he chose that place'

(Class 9: akaboná.yo + h	'he saw it'
(Class 10: akaboná.jyo + h	'he saw them'
(Class 17: akaboná.ko + h	'he saw that place'

(ii) The [H̄] behaviour of these O.S.s differs from that of other [H̄] elements in two ways:

1. They may bear h tone associable with their own [H̄] characteristic should intervening elements prevent realisation on a subsequent word. The class 17 examples which appear below are typical of the other classes. They illustrate the tonal behaviour which occurs when an O.S. is immediately followed by a [H̄] element or by a word with fixed T.C.

akasanga.kó	gĩnhĩ.	'he found an owl there'
akasanga.kó	vtalá.	'he found a lamp there'

2. A further difference may be observed when two O.S.s of classes 16,17 or 18 occur together at the end of a sentence. In these circumstances the O.S. in final position is not realised on a low tone but bears a h tone. As the preceding O.S. also bears its own h tone, the operation of tone slip causes the second h tone to be heard as mid, e.g.

akasika.kó! hó. 'he arrived there at that place'.

Tone slip may be observed in two consecutive syllables when the

verbal radical is [H] , e.g.

akaboná !kó !hó . 'he saw over there at that place'.

The use of two O.S.s in final position was encountered only in classes 16,17 and 18.

(iii) No difficulties of analysis are presented by those forms in which na- combines with postposed O.S.s, e.g. nayo [H] 'with,by, etc. it' (class 9), nago [H] 'with, by etc. them' (class 6). Na- behaves as a [N] element and has the value of one syllable, while the characteristics of the other constituents are as described above, e.g.

Class 9 [N] → nayo + h [H] → náyo + h

Class 6 [N] → nago + h [H] → nágo + h

IV T.D. of tense signs

(a) Throughout this section the abbreviation T.S. will be used for Tense Sign. A T.S. consists of a suffix and in most cases an infix.

It will be noted that so far no mention has been made of the part played by the T.D. of T.S.s in the multiple distinctiveness of verbals as described in preceding sections of this chapter. This is because T.S.s show their T.D. in so many ways that it would obscure the issue to attempt to assign T.D. to them before having systematised the more simple types of tonal behaviour exhibited by other verbal constituents.

Thus in our examples so far the T.S. has been kept constant except when it was desired to demonstrate the fact that T.D. depending

on the grammatical class of the D.V.P. is maintained throughout most tenses.

T.S.s exhibit so many different kinds of tonal behaviour that strictly speaking the term T.D. cannot be used here in the same sense as in the preceding cases. In T.S.s it is really a tonal characteristic which can be related to the T.D. of non-comparable elements in other words. Thus if a T.S. is marked as \boxed{H} , this does not imply that it can be commuted with another T.S. which is \boxed{N} . It merely indicates that its tonal characteristics are similar to those of another element with true \boxed{H} T.D. Nevertheless we shall continue to use the expression T.D. in this connection.

For this reason the question of numbers of types of T.D. does not arise in this section, i.e. we cannot multiply the eight possible tonal distinctions previously mentioned by the various types of tonal behaviour which characterise T.S.s.

To ensure that the evidence concerning the T.D. of T.S.s covered every possible tonal distinction each tense was observed in the following twenty-four forms:

	With \boxed{N} radical	With extended \boxed{N} radical	With \boxed{H} radical	With extended \boxed{H} radical
Without	With Dependent	Verbal	Prefixes	of classes 1,4,9
O.S.	"	"	"	" " Non 1,4,9
With	"	"	"	" " 1,4,9
\boxed{N} O.S.	"	"	"	" " Non 1,4,9
With	"	"	"	" " 1,4,9
\boxed{H} O.S.	"	"	"	" " Non 1,4,9

It was also found necessary to investigate the T.C. of these forms in the two following contexts:

- (i) followed by [N] elements
- (ii) preceded by [H] and followed by [N] elements, thereby bringing the total number of verbal forms examined for each tense to forty-eight.

It will be noted that no mention has been made of the necessity of observing the behaviour of a given T.S. in verbals with radicals of different shape. It is of course important not to overlook this additional factor. From a practical viewpoint however it is preferable first to attempt to infer the tonal characteristics of a T.S. from the T.C.s of its forty-eight forms. The validity of the inference can then be tested by referring to the forty-eight forms of the same tense in verbals whose radicals are of a different shape.

(b) From these investigations it becomes evident that T.S.s may be assorted into two main categories according to their tonal characteristics:

A. T.S.s which may be incorporated into the general system of varying T.C.s as governed by the rules of tonal behaviour formulated in Chapter II, section 4.

B. T.S.s which are not amenable to systematisation. No T.D. can be ascribed to these T.S.s. From a tonal viewpoint they form part of a fixed T.C. which is peculiar to the verbal form regardless of the T.D. of its constituents. Tenses which fall into this category are tonally extra-systemic and do not come within the scope

of this work. Examples of such tenses are:

Tense No.	6	-lii-	-a	Present, Aspect of habitual action or incompletion
"	"	7	-a- -ile	Distant Past, Aspect of completion
"	"	10	— -ile	Present, Aspect of completion
"	"	13	-aga (sing.) -agi (plural)	Imperative
"	"	14	— -e	Dependent Tense (sometimes referred to as the "Subjunctive")

In category A the T.D. of a T.S. as inferred from the T.C.s of the various forms must be valid for all the forms in which the T.S. occurs, or at least for a large group of forms composing a readily defined sub-unit of the whole set, e.g. for all forms with D.V.P.s in classes 1,4,9, or for all forms except those with a [N] O.S.

Unless this principle is rigidly observed, T.S.s which are for the most part unamenable to systematisation may be classified under category A because a small proportion of the forms in which they occur show systematic behaviour.

If, on the other hand, when inferring the T.D. of T.S.s we excluded as non-systematic all types of behaviour other than that associated with a narrow interpretation of [N]/[H] T.D., little that could be considered as systematisable would remain amongst verbal forms. At the same time the area of unsystematisable material would be greatly increased.

For this reason then, not only has [N] and [H] T.D. been attributed to T.S.s., but also (N) and (H) T.D. As can be seen from the list below, dissyllabic Tense Infixes and Suffixes may behave as

though composed of elements with different T.D. which may also be shown in different ways, e.g. [N] + [H] , (NH), (HN).

By increasing the number of sub-categories of T.D. in this manner it is possible to infer that in some cases elements in these sub-categories have combined. Thus a far larger area of the tonal structure of the Sukuma verbal can be systematised than would otherwise be possible.

(c) As a result of observing the tonal behaviour of various tenses in all relevant contexts, the following important rule has been formulated regarding tonal relationships between suffixes and other components which follow the radical element.¹

(i) All constituents which follow the radical element have the same T.D. as the suffix, e.g.

- (1) a_vka_v-ga- solá 'he chose them' (class 6)
- (2) a_vlaa_v-ga-sóle + h 'if he chooses them'
- (3) a_vlaa_v-ga-sólanije + h 'if he chooses them at the same time'

In (1) the h tone on the suffix may be ascribed to the [H] T.D. of -ga-. In (2) the [H] T.D. of -ga- is realised on -sol- because the [H] suffix -e intervenes. In (3) the same realisation takes place because -anij- is [H] like its suffix -e.

(ii) Similarly if the suffix has a constant T.C., all other

1. A radical element is that part of a complex radical which may be compared to a simplex radical.

constituents after the radical element will be (N) e.g.

(1) ata-ga-sól-_vilé 'he did not choose them'

(2) ata-ga-sól-_vanigijé 'he did not choose them at the same time'

In (1) the h tone on-sól- is associable with -ga- while in (2)

there is a similar association. In both cases elements with

constant T.C. prevent h tone from appearing on the second syllable

after -ga- . It is a normal occurrence in Sukuma for the extension

-anij- in conjunction with the suffix -ile to be realised as -anigije.

(iii) When a [N] radical is preceded by a [N] O.S. of the shape -CV, the tonal characteristics of the radical too may be modified by those of a [H] or fixed T.C. suffix, e.g.

(1) ata-sólaga + h 'he never chooses'

(2) ata-kú-solaga + h 'he never chooses thee'

In (1) the [H] T.D. of -ta- is manifested on-sól- since the [H] suffix -aga intervenes. In (2) its realisation on -ku- can only

mean that in this case -sol- as well as -aga is behaving as though [H] .

(3) ata-ga-sól-_vanigijé 'he did not choose them at the same time'

(4) ata-kú-_vsolanigijé 'he did not choose thee at the same time'

In (3) the h tone on-sól- may be ascribed to -ga- while in (4) the h tone on-kú- can be associated with -ta-, realisation later in the word being prevented by the intervening elements with fixed T.C.

(d) Below some of the main tenses investigated are grouped according to their tonal characteristics. The list is not claimed to be exhaustive. No two-word tenses are included since this would entail a detailed study of the tonal behaviour of copulas which do not appear to be amenable to systematisation. The meanings of all

tenses mentioned in this thesis will be found in the Appendix 'Tenses'.

(i) Tense Sign		No.	Examples
[N̄] Infix	[N̄] Suffix		

-ku- -a No. 2 (a) ba-ku-sóla (b) ba-kú-bona + h

In (a) the h tone on-sol- associable with ba- shows that -ku- counts as a [N̄] syllable, while in (b) the h tone on-ku- is to be ascribed to the [H̄] T.D. of ba- which cannot be realised on-bon- since it is a [H̄] radical. The absence of h tone after (a) indicates that the suffix -a is [N̄] .

-ku- -aga No. 8 (a) ba-ku-sól-aga (b) ba-kú-bonagá

The same remarks as for Tense 2 apply in this case. The h tone on-agá in (b) may be attributed to -bon- and is a further indication of the [N̄] T.D. of the suffix:

(ii)				
[N̄] Infix	[H̄] Suffix			
-a-	-a	No.9	u-a-sola + h	[H̄] → ú-á-sol-a + h
-a-	-aga	No.5	u-a-solaga + h	ú-á-sol-aga + h
-aka-	-aga	No.19	u-aka-solaga + h	ú-áka-sol-aga + h

These inferences regarding the T.D. of the T.S. here shown are valid only when the D.V.P. is in classes 1,4,9. The appearance of h tone on vowel tense infixes under these circumstances is characteristic as mentioned earlier in this Chapter (See Sec. II, (a) (ii)). It clearly indicates the [N̄] T.D. of the infix while the [H̄] T.D. of the suffix is demonstrated by the subsequent h tone. The fact that both syllables of -aga are [H̄] can be shown by placing the [H̄] O.S. -ga- before the radical e.g. u-a-ga-sólaga + h. Had the first syllable

of the suffix been [N̄] the h tone would have occurred on it.

Furthermore the final syllable would have been heard as an extra low tone since it would be a monosyllabic [H̄] element in final position. There is no test by means of which it can be established whether [H̄] T.D. should be ascribed to the first syllable of the suffix or to both. In these circumstances the simplest method of marking has been adopted and both syllables have been underlined.

(iii)

[H̄] Infix	[N̄] Suffix	
- <u>a</u> -	-a	No. 3 √u _v - <u>a</u> -sol-á [H̄] → '√u _v - <u>a</u> -sol-á
- <u>a</u> -	-aga	No. 4 √u _v - <u>a</u> -sol-ága '√u _v - <u>a</u> -sol-ága

In both examples the h tone on the suffix may be attributed to the [H̄] infix -a-. The h tone which is heard immediately before the examples when a [H̄] element precedes is characteristic of an intervening (N) or (H) element.

A subsidiary member of this group of tenses is -aka- -aga No.18 which has a [H + N̄] infix and a [N̄] suffix, e.g. √u_v-aka-sólaga. All three tenses have this type of T.D. only when their D.V.P.s are in classes 1,4,9.

Tenses 3 and 4 exhibit idiosyncratic behaviour when a [N̄] O.S. precedes a [N̄] radical, e.g.

√u_v-a-kú-sola ; √u_v-ækú-solaga instead of
 √u_v-a-ku-sóla ; √u_v-a-ku-sólaga

(iv)

[H̄] Infix	[H̄] Suffix	
- <u>ta</u> -	-aga	No. 22. a- <u>ta</u> -sól- <u>aga</u> + h

The h tone on-sol- may be associated with the [H̄] T.D. of -ta- which

is prevented from being realised two syllables later by the intervening [H] element -aga. The subsequent h tone is attributable to the [H] suffix.

(v)		
(N) Infix	[N] Suffix	
- _v ka _v -	-a	No.1 <u>ba</u> _v ka _v -solanija, <u>ba</u> _v ka _v - <u>bonan</u> íja
- _v ka _v -	-aga	No.12 <u>ba</u> _v ka _v -solanijaga, <u>ba</u> _v ka _v - <u>bonan</u> íjaga

The absence of h tone after these extended verbals indicates that the suffixes have [N] T.D. That they are [N] and not (N) is shown by the incidence of h tone on post-radical elements due to the [H] radical -bon-. Had the suffix been (N) in this case, the other post-radical elements would also have been (N) [see above (c) (ii)]. The (N) T.D. of -_vka_v- can be inferred from the fact that although not a [H] element (see ba _vka_v-solanija) it never bears h tone associable with a [H] D.V.P. (see ba _vka_v-bonaníja). Furthermore there appears to be a distinctive realisation of a preceding [H] element which is heard as a h tone when an infix with constant T.C. intervenes in the next word, e.g. [H] → 'ba _vka_v-solanija
but [H] → ba-ku-sólanija.

(vi)		
(N) Infix	[H] Suffix	
<u>v</u> laa _v	-e	No.16 <u>ba</u> <u>v</u> laa _v -sol-e + h, [H] → 'ba <u>v</u> laa _v -sol-e _{+h}

The situation as regards the infix is similar to that in Tenses 1 and 12. The [H] T.D. of the suffix is shown by the subsequent h tone.

(vii)

<u>(H) Infix</u>	<u>[N] Suffix</u>		
√láá√	-a	No.11	a√láá√sol-a
√láá√	-aga	No.17	a√láá√sol-aga
√ú√	-a	No.20	√ú√sol-a

The infix √láá√ is always heard with level h tone. The absence of subsequent h tone indicates that the suffix is either [N] or (N). When -sol- is commuted with the [H] radical -bon- in its extended form, the following T.C. is heard: a√láá√ bonaníja showing that the post-radical elements and therefore the suffix is [N] and not (N).

Tense No. 20 differs from the others in this group in that its D.V.P. is always (H) regardless of grammatical class. While this type of T.D. is not maintained however, the T.D. of radicals is preserved.

√ú√sol-a	√bá√sol-a
√ú√ <u>bon</u> -a + h	√bá√ <u>bon</u> -a + h

(viii)

(H) Infix [H] Suffix

√-á√	- <u>a</u>	No.9	√báá√sol- <u>a</u> + h	√báá√ <u>ga</u> -sól- <u>a</u> + h
√-á√	- <u>aga</u>	No.5	√báá√sol- <u>aga</u> + h	√báá√ <u>ga</u> -sól- <u>aga</u> + h

Tense 19 is a subsidiary member of this group. It has a (HN) infix and a [H] suffix, √-áka√ -aga,

e.g. √bááka√sol-aga + h √bááka√ga-sól-aga + h

In classes Non 1,4,9 these three tenses always have a level h tone on that part of the verbal formed by the coalescence of D.V.P. and tense infix. The [H] T.D. of the suffix can be inferred from the

subsequent h tone and also from the T.C. when the [H] T.D. of the O.S. -ga- is realised on -sól- due to the intervening [H] suffix. The forms which these three tenses assume in classes 1,4,9 have already been dealt with in group (ii)

(ix)

[H] Infix (NH) Suffix

-ta- -jilé_v No.21 a-ta-sól-jilé_v
a-ta-bon-jilé_v

The h tone on-sol- can be associated with the [H] T.D. of -ta-. When the radical is [H] no h tone is heard on it. This behaviour is typical of [H] elements when another [H] element intervenes. The fact that h tone is not heard on the first part of the suffix in either example indicates that the suffix has a fixed T.C.

(x)

(NH) Infix (NH) Suffix

-taká_v -jilé_v No.23 a-taká_v-sol-jilé_v
ba-taká_v-sol-jilé_v

T.D. attributable to the grammatical class of the D.V.P. is no longer shown in this tense unless a [H] element precedes, e.g.

[H] → á-taká_v-sol-jilé_v
ba-taká_v-sol-jilé_v

Similarly the T.D. of radicals is indicated only when a [H] O.S. precedes them, e.g.

a-taká_v-sol-jilé_v a-taká_v-ga-sól-jilé_v
a-taká_v-bon-jilé_v a-taká_v-ga-bon-jilé_v

The T.C. of both tense elements remains constant in every context

regardless of the T.D. or shape of the other verbal components.

(xi) Although the Independent Nominø-Verbal with prefix ku- and suffix -a (No.15) is not a tense, it has many points of contact with those verbals which are true tenses. On observing it in all relevant forms and contexts its T.D. was found to depend on that of its radical and infixed O.S. if any. There is no D.V.P., but in its place is the single Independent Prefix of class 15 ku- which like all other single I.P.s has [N̄] T.D. In the absence of a true T.S. there is a [N̄] suffix which, together with the I.P., must also be taken into account when inferring the T.D. of the Independent Nominø-Verbal.

In the examples listed below it will be noted that h tone associable with a [H̄] element in a preceding word is frequently realised on the second syllable whether this be a [N̄] radical or [N̄] O.S. Such behaviour is characteristic of nominals but never found in true verbals. During investigations each form was observed in two contexts:

1. followed by [N̄] elements
2. preceded by [H̄] and followed by [N̄] elements.

Two items therefore will be given for each form, the second one corresponding to context 2.

	Without O.S.	With [N] O.S.	With [H] O.S.
With [N] radical	ku-sola ku-sóla	ku-ku-sola ku-kú-sola	ku-ga-solá kú-ga-solá
With extended [N] radical	ku-solanija ku-sólanija	ku-ku-solanija ku-kú-solanija	ku-ga-solánija kú-ga-solánija
With [H] radical	ku-bona + h kú-bona + h	ku-ku-bona + h ku-kú-bona + h	ku-ga-bona + h kú-ga-bona + h
With extended [H] radical	ku-bonanija kú-bonanija	ku-ku-bonanija ku-kú-bonanija	ku-ga-bonanija kú-ga-bonanija

(e) Thus it can be seen that while the verbal components dealt with in Sections I, II and III of the present chapter have tonal features which for the most part enable them to be categorised as either of [N] or of [H] T.D., tense signs behave in such a manner that, after each one has been considered separately, only a few can be grouped together on the grounds of similar tonal characteristics.

CHAPTER IV

The T.D. of concord elements in nominals

While the concord elements of classes 1 to 15 exhibit clearly and consistently their tonal characteristics, those of classes 16, 17 and 18 present many anomalous features, behaving sometimes in one way and sometimes in another. For this reason they will be dealt with in a separate section at the end of this chapter.

The concord elements of all classes are listed in an appendix.

(A) CLASSES 1 - 15

1. Independent Prefixes

(a) Single

Although the T.C. of a sentence may change when a single I.P. is commuted, this is due to a change of prefix shape which alters the number of syllables in the example. I.P.s of classes 1,3,5,9,10 are often non-syllabic,* e.g.

- | | | | | | | |
|-----|-----------|-----|-------------------|-------|-------------------|----------------|
| (1) | m-limj | [N] | 'cultivator' | Cl.1 | akabona m-limj | 'he saw, etc.' |
| | ba-limj | [N] | 'cultivators' | Cl.2 | akabona ba-limj | |
| (2) | m-gono | [N] | 'trap' | Cl.3 | akabona m-gono | |
| | mj-gono | [N] | 'traps' | Cl.4 | akabona mj-gono | |
| (3) | j-hagala | [N] | 'forked branch' | Cl.5 | akabona j-hagala | |
| | ma-hagala | [N] | 'forked branches' | 6 | akabona ma-hagala | |
| (4) | n-goso | [N] | 'mouse' | Cl.9 | akabona n-goso | |
| | n-goso | [N] | 'mice' | Cl.10 | akabona n-goso | |

* non-syllabic = not to be taken into account when predicting the incidence of h tone associable with a preceding [H] element. See Appendix 'Syllables'.

From each of these examples except (3) it may be seen that the T.D. between classes 1/4/9 and the remainder does not operate in the case of single I.P.s. In example (4) there are items in classes 9 and 10 which have the same tonal behaviour. When there is grammatical T.D. these two classes are always tonally distinct. Indeed all single I.P.s which for tonal purposes count as a syllable behave as though they had [N] T.D.

Where a word with a -VCV stem has a fixed T.C. the I.P. is invariably spoken at normal level and is outside the general system of [N] / [H] T.D.

More detailed reference is made to the tonal behaviour of single I.P.s in the Appendix "Syllables - Prefix Shape".

(i) Diminutive and augmentative prefixes

There are two sets of Diminutive Prefixes: ka-/tu- which occur in direct junction with nominal stems, and kaa-/tuu- which are always followed by an augment [see Chapter V A (iii)]. They behave as though [N] in the same manner as single I.P.s, the long vowels counting as one syllable. They have agreements in classes 12/13, Augmentative Prefixes also are of two types, j-/ma- found in junction with stems, and lii-/maa- which always have augments. Their behaviour is similar to that of the Independent Prefixes and their agreements are in classes 5/6.

akabona ka-góbo/tu-góbo 'he saw a small skin/skins'

akabona kaa-múnhu/tuu-múnhu 'he saw a small person/persons'

akabona i-ŋombé/ma-ŋómbe 'he saw a big ox/oxen'

akabona lii-mýnhu/maa-mýnhu 'he saw a big person/persons'

(b) Double

As with single I.P.s no T.D. exists between prefixes of different classes. There is however a kind of behaviour which is common to all classes and types of double prefix whether D.I.P. or D.D.P. This distinguishes them clearly from single prefixes and centres round the tonal characteristics of the second part of the double prefix.

When a [H̄] element precedes a double prefix word, whatever the T.D. of the nominal stem, h tone always occurs on the syllable formed by the first part of the double I.P. and the preceding vowel. This means that in these cases Rule 2 is inapplicable.

The differing behaviour of words with single and double prefixes is shown below. (No h tones would be heard in any of these words but for the preceding [H̄] element.)

[H̄] →	ma-hágala	'forked branches' 6	[H̄] →	má- <u>sumbj</u>	'stools' 6
"	áma-hágala		"	áma- <u>sumbj</u>	
"	mj-góno	'traps' 4	"	mí- <u>kologoma</u>	'kind of tree' pl. 4
"	ímj-gono		"	ímj- <u>kologoma</u>	
"	m-gonó	'trap' 3	"	ím- <u>kologoma</u>	'kind of tree' sing. 3
"	úm-gono		"	úm- <u>kologoma</u>	

II. Dependent Prefixes

As already mentioned in Chapter I, section IV(a), there are two series of D.P. each with characteristic tonal behaviour. D.N. stems

combine with either Series I or Series II but not both. In an Appendix will be found some D.N. stems listed according to the series of D.P. with which they occur.

(a) Series I

(i) Single

The D.P.s of Series I are in many ways similar to the I.P.s. As with single I.P.s there is no T.D. between single D.P.s of Series I, e.g.

mahagala ma-doto 'wet forked branches' Cl.6

mɪbanga mɪ-doto 'wet mbanga trees' Cl.4

The situation as regards the syllabic value of prefixes in this series is comparable with that which pertains in single I.P.s, i.e. the prefixes of Classes 1,3,5,9,10 are non-syllabic, e.g.

i-sumbɪ i-doto 'wet stool' Cl.5

ma-sumbɪ ma-dóto 'wet stools' Cl.6.

(ii) Double

There is the same tonal distinction between single and double D.P.s as between single and double I.P.s. As with double I.P.s there is no T.D. according to grammatical class, e.g.

Cl.6. ma-sumbɪ ma-dóto 'wet stools' mɪ-kologoma mɪ-dóto 'wet mkologoma trees' 4

ma-sumbɪ áma-doto

mɪ-kologoma ímɪ-doto

(b) Series II

The T.C. of a D.N. of Series II varies according to the grammatical class in which it occurs and also according to whether the prefix is single or double.

(i) Single

D.P.s (Series II) of classes 1/4/9 exhibit [N̄] behaviour, whilst those of the remaining classes (with the exception of 16/17/18) behave as though they are [H̄].

The following examples show D.P.s (Series II) in combination with both [N̄] and [H̄] dependent nominal stems and preceded by both [N̄] and [H̄] independent nominals. Regardless of the tonal characteristics of preceding or following elements the T.D. of D.P.s is always preserved. It will be noted that in the -ngi forms, whenever there is a monosyllabic [H̄] element in final position it is realised as low. Should there be another [H̄] element in the word, i.e. a Non 1/4/9 D.P. (Series II) all tones are realised as normal.

A Preceded by [N̄] elements

	(i)-api 'black'	(ii)-ngi 'other'
Cl.1 my-nhu 'person'	u-apí	u-ngí
2 ba-nhu 'persons'	ba-apí	ba-ngí
3 m-banga 'k. of tree'	gu-apí	gu-ngí
4 mī-banga 'k. of tree' (Pl.)	yi-apí	yi-ngí
9 n-gobo 'hide'	yi-apí	yi-ngí
10 n-gobo 'hides'	ji-apí	ji-ngí

B Preceded by [H̄] elements

Cl.1 m-temi 'chief'	u-apí	u-ŋgí *
---------------------	-------	---------

*For the realisation of [H̄] tones in these circumstances see the Appendix "Syllables - nasal compounds and intervening [H̄] elements".

Cl.2	<u>ba-temi</u>	'chiefs'	<u>ba-apí</u>	<u>ba-ngi</u>
3	<u>m-kologoma</u>	'k. of tree'	<u>gu-apí</u>	<u>gu-ngi</u>
4	<u>mí-kologoma</u>	'k. of tree' (Pl.)	<u>yi-apí</u>	<u>yi-ngi</u>
9	<u>n-goko</u>	'fowl'	<u>yi-apí</u>	<u>yi-ngi</u>
10	<u>n-goko</u>	'fowls'	<u>ji-apí</u>	<u>ji-ngi</u>

Although in B(i) the D.N. has the same T.C. in all classes, this is a coincidence due not to the absence of T.D. in the D.P.s but to a combination of the behaviour associable with prefix T.D. and the behaviour which may be ascribed to the T.D. of the preceding I.N. Thus the final h tone on -apí in B(i) Classes 2,3 and 10 may be attributed to the [H] D.P., as can be seen in A(i). On the other hand, the h tone in the same position in B(i) Classes 1,4 and 9 is entirely dependent on the presence of a [H] element in the preceding independent nominal. This can be verified by contrasting the A(i) examples in these classes where there is no [H] element in the preceding independent nominal and no h tone in the D.N.

It should be noted that the [H] T.D. of D.P.s is different from that of non-concordial elements since a [H] prefix may bear its own h tone should an intervening [H] element prevent realisation two syllables later, e.g.

			'black'	'red'
Cl.10	n-gobo	'hides' N	<u>ji-apí</u>	<u>ji-aza</u>
Cl.10	<u>n-goko</u>	'fowls' H	<u>ji-apí</u>	<u>ji-aza</u>

As will be seen below, the only occasion on which a [H] non-concordial element bears its own h tone is when immediately followed

by a word with fixed T.C. If however a [H] element intervenes, in this position, the non-concordial element is spoken at normal level.

(ii) Single D.Ps. (Series II) in combination with a stem of fixed T.C.

There are a few D.N. stems with fixed T.Cs. When these stems combine with D.Ps. (Series II), T.D. according to the grammatical class of the prefix is no longer maintained. The prefixes always have a normal speech tone which forms part of the invariable T.C. of the D.N. Such words are outside the general system of [N] / [H] T.D.

As h tone associable with preceding [H] elements is never realised on such words, it occurs on the last syllable of the previous word even though this be [H]. This is demonstrated in the following examples in which the tonally invariable stem $\sqrt{\text{osé}}$ ('all, entire') is used.

Cl.3 m-tí $\sqrt{\text{gu-osé}}$ m-taale. (m-tí 'tree')

4 m₃-tí $\sqrt{\text{yi-osé}}$ m₃-taale.

3 m-kologomá $\sqrt{\text{gu-osé}}$ m-taale. (m-kologoma 'kind of tree')

4 m₃-kologomá $\sqrt{\text{yi-osé}}$ m₃-taale.

(iii) Double

The T.D. existing between Classes 1/4/9 and the remainder of the single D.Ps. (Series II) has already been described. The same variety of T.D. is also to be found in the double D.Ps. (Series II) as the following examples will show.

Cl.1	my-nhu	uwu-api	uwu- <u>ngi</u>
2	ba-nhu	<u>aba</u> -api	<u>aba</u> -ngi
3	m-banga	<u>ugu</u> -api	<u>ugu</u> -ngi
4	mi-banga	iyi-api	iyi- <u>ngi</u>
9	n-gobo	iyi-api	iyi- <u>ngi</u>
10	n-gobo	<u>iji</u> -api	<u>iji</u> -ngi

When the double D.P. (Series II) is preceded by a [H] element it becomes clear that its behaviour is similar to that which has already been described for double I.Ps. and double D.Ps. (Series I). When a [H] element precedes a double prefix nominal of any kind, whatever the T.D. of the stem of that word, h tone always occurs on the syllable formed by the first part of the double prefix and the preceding vowel e.g.

Cl.1	m- <u>temi</u>	úwu-api	úwu- <u>ngi</u>
2	ba- <u>temi</u>	ába-api	ába- <u>ngi</u>
3	m- <u>kologoma</u>	úgu-api	úgu- <u>ngi</u>
4	mi- <u>kologoma</u>	iyi-api	iyi- <u>ngi</u>
9	n- <u>goko</u>	iyi-api	iyi- <u>ngi</u>
10	n- <u>goko</u>	íji-api	íji- <u>ngi</u>

(iv) Double D.Ps. (Series II) in combination with a stem of fixed T.C.

When a double D.P. (Series II) combines with a stem of fixed T.C. the second part of the double prefix of all classes always has a normal speech tone regardless of any [H] elements which may

precede. In this respect it behaves similarly to the single D.P. (Series II) in this position. The tone of the first part of the double prefix however is liable to vary according to the T.D. of the preceding elements as may be seen from the following examples:

akasola a.ga-osé. 'he chose them all' (Cl.6)

akabona á.ga-osé. 'he saw them all' (Cl.6)

(c) Extra dependent prefixes¹

These have the same shape and T.D. as the single D.Ps. (Series II), i.e. those of Classes 1/4/9 are [N] while the remaining classes are [H].

E.D.Ps. are linked to a nominal by the tonally neutral element -a- with which they coalesce, imposing on it their own T.D. Although coalescence with an E.D.P. lengthens the -a-, the two elements together have the value of only one syllable.

(i) With independent nominals

The following is an example of a variation of T.C. associable with the presence of E.D.Ps. of different T.D.:

(1) Cl.9 n-gi ~ yi-a-lúsalo 'large biting housefly'

(2) Cl.10 n-gi ~ ji-a-lusálo ' " " houseflies'
(lit. 'fly of madness')

In (1) the h tone on -lúsalo can be associated with the T.D. of the [H] element -gi, realised on the second syllable of the following word, (in which yi-a- counts as one syllable).

1. These are often referred to as "the genitive construction".

In (2) since the [H] E.D.P. ji- intervenes, there are no [N] syllables available for the realisation of the [H] T.D. of -gi, which is therefore spoken at normal level. The h tone on -lusálo may be described as the [H] behaviour of ji-a- occurring two syllables later.

(ii) With dependent nominals

1. The tonal behaviour of Series I D.Ns. with an extra D.P. is identical with that of I.Ns., since like I.Ps., D.Ps. of Series I have no tonal distinctiveness according to their class e.g.

yi-a-madoto (Cl.9) 'of wet ones' (Cl.6)

ji-a-madóto (Cl.10) 'of wet ones' (Cl.6)

2. When E.D.Ps. combine with Series II D.Ns. however, the situation becomes more complicated since, as we have seen, the tonal characteristics of both the E.D.P. and the D.P. Series II vary according to their grammatical class. Thus the following typical T.Cs. may result:

(1) yi-a-yiapí (Cl.9) 'of black ones' (Cl.4)

(2) yi-a-guapí (Cl.9) 'of a black one' (Cl.3)

(3) ji-a-yiapí (Cl.10) 'of black ones' (Cl.4)

(4) ji-a-guapí (Cl.10) 'of a black one' (Cl.3)

Certain questions concerning syllabic value and the rising tone on the E.D.P. and junctive -a- emerge from the above examples. They are dealt with in the Appendix "Syllables" under "Prefix Shape (D)". In the first two examples the T.C. changes when a [H] element precedes e.g.

(1) [H] → yi-a-yí-apí [N]

(2) [H] → yi-á-gu-apí [N]

the high falling tone in (1) being associable with the presence of the [H] element which precedes, as is the rising tone in (2).

When however a [H] element immediately precedes examples (3) and (4) no change occurs in the T.C. and the [H] element is not followed by h tone e.g.

n-gi ji-a-yiapí (Cl.10) 'flies of black ones' (Cl.4)

n-gi ji-á-guapí (Cl.10) 'flies of a black one' (Cl.4)

3. When E.D.Ps. combine with dependent nominals which have a double prefix of Series II, the ultimate degree of multiple tonal distinctiveness is reached. In such cases the T.D. of the word depends not only on the tonal characteristics of the stem but also on the grammatical class of the E.D.P. and of the D.P. Series II. Furthermore it is partly determined by the peculiar tonal features of double prefixes, as the following examples show:

(1) yi-a-iyi-apí (Cl.9) 'of the black ones' (Cl.4)

(2) yi-a-ugu-apí (Cl.9) 'of the black one' (Cl.3)

(3) ji-a-iyi-apí (Cl.10) 'of the black ones' (Cl.4)

(4) ji-a-ugu-apí (Cl.10) 'of the black one' (Cl.3)

In (1) all the constituents are [N] and there is no preceding [H] element which would cause the double prefix to display its characteristic behaviour of a h tone on its first part e.g.

[H] → yi-a-íyi-apí

In (2) the [H] T.D. of the Cl.3 double D.P. is observed on the

final syllable of the word. As with (1) a preceding [H̄] element would be associated with the presence of h tone on the first part of the double prefix e.g.

[H̄] → yi-a-úgu-apí

In (3) the [H̄] T.D. of the Cl.10 E.D.P. is realised on the first part of the [N̄] double prefix iyi-. Any [H̄] elements which immediately precede ji- are spoken at normal level.

In (4) as in (3) the [H̄] T.D. of the E.D.P. is heard on the double prefix. The h tone on the last syllable of the word may be associated with the [H̄] T.D. of the Cl.3 double prefix. [Compare (2) and contrast (3)]. As in (3) any preceding [H̄] elements would be spoken with normal tones.

III. Selectors

(a) Unstable

There are two main series of selector - "Near" ('this') and "Far" ('that'). They are very similar in shape, the only difference being that the "Far" selectors always end in -o. There is no T.D. according to grammatical class. Both series behave as though [N̄] throughout e.g.

akasola	uyu	m-taale	'he chose this big one'	Cl.1
"	aba	ba-taale	" " these " ones'	Cl.2
"	uyo	m-taale	" " that " one'	Cl.1
"	abo	ba-taale	" " those " ones'	Cl.2
akabona	uyú	m-taale	'he saw that big one'	Cl.1
"	abá	ba-taale	" " those " ones	Cl.2

akabona uyó m-taale 'he saw that big one' Cl.1

" abó ba-taale " " those " ones' Cl.2

It is worthy of note that all these selectors count as two syllables for tonal purposes although they begin with a vowel. In most other cases an initial vowel is non-syllabic unless immediately followed by a [H̃] element.

(b) Stable

There are two main series of Stable Selector, "Near" and "Far". These occur in all the classes. Their respective meanings are roughly 'here it is/they are' and 'there it is/they are'. As with the Unstable forms the two series are very similar in shape, the "Far" selector always ending in -o. There is no T.D. according to grammatical class. Both series have the same constant T.C. throughout e.g.

•gáaga•! 'here they are' Cl.6 •úuyu•! 'here he is' Cl.1

•gáago•! 'there they are' Cl.6 •úuyo•! 'there he is' Cl.1

IV. Relative head-word series.

The members of this series are identical in shape and tonal characteristics with the corresponding members of the Unstable "Far" Selector Series. They are distinguishable from this series only by syntactical criteria and meaning. They behave as though [Ñ] and exhibit no grammatical T.D. These elements initiate a certain type of relative construction and are in grammatical agreement with the antecedent. The verbo-nominal relative construction

without head-word has already been dealt with in Chapter III Section II(e).

V. Possessive dependent nominals

The shape of the stem of these nominals may be related to that of the D.P. Series II. All however end in -o with the exception of the three persons of Cls. 1 and 2. They enter into agreement by means of the D.Ps. of Series II with a junctive -a-, i.e. the following stems

-a-jo	'of them (Cl.10)'	-a-lwo	'of it (Cl.11)'
-a-lo	'of it (Cl.5)'	-a-go	'of them (Cl.6)'

may all take a D.P. Series II of any class.

It is not implied by these remarks on shape that the T.D. of such nominals may be inferred from their components. Indeed, the tonal features of all members of this series are the same throughout regardless of the grammatical class of the prefix or the associations of the stem. Thus there is no tonal distinction whether the stem be -a-yo (Cl.9) or -a-jo (Cl.10), or whether the D.P. be yi- (Cl.9) or ji- (Cl.10) e.g.

{ n-goso. yi-ágo + h (Cl.9 D.P. + Cl.3 stem) 'the mouse of it'
 { n-goso. ji-ágo + h (Cl.10 D.P. + Cl.3 stem) 'the mice of it'
 { n-goso. yi-áyo + h (Cl.9 D.P. + Cl.9 stem) 'the mouse of it'
 { n-goso. yi-ájo + h (Cl.9 D.P. + Cl.10 stem) 'the mouse of them'

Furthermore the T.C. of this type of word does not change when preceded by a [H] element, e.g.

n-bulí. yi-ágo + h (Cl.9 D.P. + Cl.3 stem) 'the goat of it'

The following then are the characteristics of the series:

(i) a shape CVVCV, the long vowel having a rising tone, (ii) h tone on the following word, (iii) as is usual with fixed T.Cs., h tone associable with a preceding [H] element is heard on the last syllable of the word containing that element.

A complete list of these stems will be found in the table of concord elements in the Appendix.

(B) CLASSES 16. 17 and 18

I. Independent prefixes.

(a) Single

It is doubtful whether there are any I.Ns. in which the prefixes ha-, ku- or my- occur except as extra independent or dependent prefixes. It is arguable however in such words as ha-nze [H] 'outside (place)' and kunze [H] 'outside (direction)' that, since the form n-ze is not known to exist without the prefix ha- or ku-, n- has ceased to function as an I.P. Thus ha- and ku- could be regarded as true I.Ps. and not extra I.Ps. They exhibit [N] behaviour e.g.

[H] → há-nze + h; [H] → kú-nze + h

(b) Double

There are no true double I.Ps. in these classes.

II. Dependent prefixes

(a) Series I

(i) Single

The D.Ps. of Series I in Cls. 16, 17 and 18 all show the same

tonal characteristics. They have [N] T.D. like the dependent prefixes (Series I) of the other classes, e.g.

ku-m̥banga ku-doto 'over by the mbanga trees is wet'

ku-m̥kologoma ku-dóto ' " " " mkologoma " " " '

in which the h tone on the second syllable of ku-dóto may be associated with the preceding [H] elements in m̥j-kologoma.

(ii) Double

These behave like the double D.Ps. (Series I) of all the other classes. They have [N] T.D. and those tonal features which are characteristic of all double prefixes, e.g.

ku-m̥banga uku-doto 'over by the mbanga trees where it is wet'

ku-m̥kologoma úku-doto 'over by the mkologoma trees where it is wet'

The h tone on the first part of the double prefix is associable with the [H] T.D. of m̥j-kologoma. The distinctive tonal behaviour of double prefixes may be seen in the following examples:

ku-m̥kologoma ku-dóto

but ku-m̥kologoma úku-doto

(b) Series II

(i) Single

These prefixes have [N] T.D. like the corresponding prefixes of Cls. 1, 4 and 9 e.g.

ku m̥j-banga ku-ap̥j 'over by the mbanga trees is dark'

ku m̥j-kologoma ku-ap̥j ' " " " mkologoma " " " '

Ha- and my- exhibit similar characteristics. The words hangi

'again' and kungi 'elsewhere' must be looked on as idiosyncratic formations which are not amenable to systematisation. Although -ngi 'other' is a nominal stem which requires D.Ps. of Series II, the tonal behaviour of ha- and ku- in these words is incompatible with that of the D.Ps. (Series II) of Cls. 16 and 17.

(ii) Double

The double D.Ps. Series II of these classes behave like those of Cls. 1, 4 and 9, e.g.

Cl.16	ha-mi-banga	aha-api	'on the <u>mbanga</u> trees where it is dark'
17	ku-mi-banga	uku-api	'over by the " " " " " " '
18	my-mi-banga	aha-api	'in the " " " " " " '
16	ha-mi-kologoma	áha-api	'on the <u>mkologoma</u> trees where it is dark'
17	ku-mi-kologoma	úku-api	'over by the " " " " " " '
18	my-mi-kologoma	áha-api	'in the " " " " " " '

It is noteworthy that the Class 16 D.P. aha- occurs where one would expect the form umy- after the E.I.P. my-. While this is not invariably the case, generally speaking it is difficult to predict when the Class 18 D.P. will be used.

III. Extra independent prefixes

The E.I.Ps. ha-, ku-, and my- may combine with any nominal, independent or otherwise, as far as is lexically compatible, but they may never be followed by a double prefix of any kind. All three classes have similar tonal features. They behave as though [N]. In the examples which follow, the Cl. 16 E.I.P. is quoted as

representative of the others.

(a) E.I.P + I.P.

ha.mí-banga [N̄] (Cl.16) 'on the mbanga trees' (Cl.4)

[H] → ha.mí-banga [N̄]

ha.mí-kologoma [H] (Cl.16) 'on the mkologoma trees' (Cl.4)

[H] → ha.mí-kologoma [H]

In this connection it should be noted that when the nominal is stable the E.I.P. behaves as though [H] e.g.

my.n-numba + h..... 'in the house....'

but my.n-numbà. 'In the house'. (Response)

This example is also typical of Cls. 16 and 17.

Before the linking element -li-¹ in Class 1 words the behaviour of the E.I.Ps. of Cls. 16, 17 and 18 is anomalous. Although [N̄] in other contexts, in this case no h tone is heard on them when a [H] element precedes, e.g.

akabita ku-li-m-limí 'he passed by a cultivator'.

(b) E.I.P. + D.P.

Series I ha.madoto [N̄] (Cl.16) 'on wet ones' (Cl.6)

[H] → ha.mádoto [N̄]

Series II

with [N̄] D.P. ha.yí-apí [N̄] (Cl.16) 'on black ones' (Cl.4)

[H] → ha.yí-apí [N̄]

with [H] D.P. ha.ga-apí [N̄] (Cl.16) 'on black ones' (Cl.6)

[H] → há.ga-apí [N̄]

1. See Ch.V.(A), III, (b) 1.

IV. Extra dependent prefixes.

No example was found of an E.D.P. in these classes.

- V. Selectors - stable and unstable) The tonal behaviour of these
Relative head word series) types of concord element is the
same in Cls. 16, 17 and 18 as in
Cls. 1 - 15.

CHAPTER V

Tonal characteristics of other morphological features in nominals.

So far the T.D. of nominal stems and of their concord elements has been dealt with. In the present chapter an attempt will be made to carry a stage further the tonal analysis of nominals by assigning T.D. to pre- and post-radical formatives (other than concord elements) in accordance with their tonal behaviour in various contexts. As the series to which these items belong are often fragmentary, this is by no means an easy task. The method of substitution has been used to establish the T.D. of words by reference to their T.Cs. and E.T.Cs. T.D. has been assigned to certain components of words by commuting them in controlled contexts and observing differences of tonal behaviour. It was possible to employ this method with such constituents as concord elements, verbal radicals and tense signs because each belongs to a regular and complete series. On the other hand while some nominal suffixes are exceedingly common, they do not occur sufficiently regularly with a subtractive meaning to permit commutation of this kind. All that can be done is to compare those nominal items which are actually to be found in the lexicon and to infer the T.D. of their components from the similar or dissimilar tonal behaviour of comparable elements in other words.

Furthermore, while to a large extent T.D. may be assigned to certain suffixes, many anomalies exist.

(A) PRE-RADICAL NON-CONCORDIAL ELEMENTS IN NOMINALS

I. ↓ká↓-

This element is associated with a pejorative meaning and requires no grammatical agreement. It may precede the I.P. of any appropriate nominal. It always bears a high speech tone and is outside the system of varying T.Cs.

e.g. akaboná ↓ká↓-munhu 'he saw a shabby sort of man'

II. -a-

The neutral tonal behaviour of non-syllabic junctive -a-, found in nominals with E.D.P. has already been mentioned under the heading 'Extra dependent prefixes' in Chapter IV.

This feature should be distinguished from the -a- which so frequently follows the D.P. Series II as shown in the list of D.Ns. in the Appendix. It is more convenient to consider the -a- of D.Ns. Series II as an integral part of the stem in which it occurs. Its T.D. is difficult to establish. In the majority of cases it appears to be [N̄], with syllabic value only when immediately preceded by a [H] element e.g.

(a) n-goko yi-apí 'black fowl' Cl.9.

(b) n-goko jí-apí 'black fowls' Cl.10.

In (a) the h tone on yi-apí may be attributed to the [H] T.D. of n-goko, yi-a counting as only one syllable. In (b) the h tone on jí-apí is associable with the [H] T.D. of jí-, jí-a counting as two syllables.

Such behaviour is characteristic of coalescing elements of different T.D.

III. Augments

(a) These are pre-radical elements which are similar in shape to I.Ps. but do not require an agreement. They are preceded by true independent prefixes, e.g.

- (1) { my-nhu/ba-nhu [N] 1/2 'person'
 (lii-mynhu/maa-mynhu [N] 5/6 'monstrous person'
- (2) { lu-gulu/n-gulu [N] 11/10 'hill'
 (kaa-lugulu/tuu-lugulu [N] 12/13 'small hill'

The agreements required by these items are indicated by the class numbers. In (1) the augment is -my- and in (2) -lu-. Their tonal behaviour in no way differs from that of the I.Ps. which they resemble (see Chapter IV).

(b) There are two noteworthy augments of a different type:

(i) A non-concordial element -li- [H] occurs between E.I.Ps. of Cls. 16/17/18 and I.Ns. of Cl.1 (including 1a) e.g.

ha)
 ku) -li- mlimí 'at, to etc. the cultivator'
 my)

in which the h tone on mlimí may be attributed to the [H] T.D. of -li-.

(ii) A non-concordial element -mu- [N] is characteristic of Cl.1a words with an E.D.P. Both the E.D.P. and -mu- are followed by an -a-, e.g.

yi-a-mu-a-koolí (Cl.9) 'of an expert'

ji-a-mu-á-koolí (Cl.10) 'of an expert'

IV. na-

This linking element may precede I.Ns. and D.Ns. It has the meaning 'and' or 'with'. It behaves in the same way as elements with [N] T.D.

V. i-

Many nominal stems begin with i-. A few examples are given below:-

-ibukí	'buoyant'	-icymí	'humble'
-idikí	'liable to spill'	-igutí	'satiated'
-igaasyí	'seated person'	-ihení	'charming'

It will be noted that in some cases h tone occurs two syllables after the i and other cases not. Where this happens i- has been marked as a [H] element. [H] behaviour and similarity of shape would tend to make one identify i in these examples with the reflexive O.S. -i-. This relationship cannot be established however as no pairs of words with and without -i- were found in which the presence of this element could be associated with "reflexive" meaning.

(B) NOMINAL SUFFIXES

For tonal purposes a suffix may be defined as the constituent which follows the portion of a nominal associable with a simplex verbal radical and this is the sense in which it is used in this chapter, e.g.

m-lim- <u>i</u>	'cultivator'	-lim-	'cultivate'
m- <u>tem</u> - <u>i</u>	'chief'	- <u>tem</u> -	'rule'
-lam <u>iku</u>	'long-lived person'	-lam-	'live long'

Where no such association is known to exist no useful purpose would be served by attempting to analyse nominal stems into radical and suffix. In such cases the T.D. of the final vowels is not amenable to systematisation. Although the syllables of this kind of nominal stem are often characterised by a particular T.D. this does not mean that they can be treated as separate morphological components. The first syllable of the stem of n-bogo 'buffalo' can be said to be [N] since it may bear a h tone (Rule 1) when preceded by a [H] element: akabona nbógo ntaalé 'he saw a big buffalo'. The final syllable -o has [H] T.D. since it is followed by a h tone on the second syllable of ntaalé. Moreover, in final sentence position this syllable is realised as low: akabona nbógò. This behaviour is characteristic of a [H] monosyllable.

In such words the T.D. of the final elements cannot be predicted from their shape. The following may occur in final position with either T.D.: i, i; i, i; e, e; e.g.

mgen <u>i</u> [N]	'stranger'	migig <u>i</u> [H]	'thwarts of a canoe'
ngili [N]	'wild pig'	-hab <u>i</u> [H]	'poor'
nbete [N]	'kind of fish'	ngele [H]	'measure'

It will be noted that in all these cases the first syllable of the

stem is [N], otherwise the T.D. of subsequent syllables would be unobservable.

'When a nominal suffix consists merely of the final vowel, e.g. m-lim-i 'cultivator', it will be referred to as a simple suffix. When it is larger than the final vowel, e.g. -lam-iky 'long-lived' it will be called a compound suffix.

In describing the tonal characteristics of nominal suffixes simple and compound varieties must be treated separately.

Sometimes a nominal is associated with a verbal radical which is found only in an extended form. This is called a complex¹ radical, e.g. m-bundulo 'stare' Cl.3. , -bundul- 'stare'.

From a morphological point of view it is essential to distinguish between complex radicals with simple suffixes as shown in the example and simplex radicals with compound suffixes like -lam-iky. Tonal analysis however indicates that in Sukuma both types of formation behave in an identical manner. Since for present purposes there is nothing to be gained by preserving this morphological distinction, both varieties will be treated as nominals with compound suffixes.

I. Simple Suffixes

(a) The following five simple suffixes regularly occur in nominal

-
1. Strictly speaking all radicals which are larger than simplex radicals are termed "complex". In this chapter however the term "complex" will be confined to those radicals not associated with any known simplex type.

stems the first syllable of which may be associated with a simplex verbal radical: -i, -e, -a, -o, -y

It is difficult to assign any generalised meaning to these suffixes except in the case of -i and -y. The former in conjunction with the 1/2 gender denotes the agent of the action expressed by the associate verbal radical e.g. m-lim-i 'cultivator', -lim- 'cultivate'. The latter may appear with any class of D.P. and is used to indicate the quality which can be attributed to the action expressed by the verbal radical e.g. -bemy 'shy', -bemb- 'drop the eyes'.

No generalised meaning can be assigned to the other simple suffixes, neither do they form part of a living process of word building. The following are typical examples.

- e i-hane [H] 'warning' Cl.5 -han- [N] 'warn'
- a i-bamba [N] 'act of patching' Cl.5 -bamb- [N] 'patch'
- o m-hayo [N] 'word' Cl.3 -hay- [N] 'say'

There is what appears at first glance to be a simple suffix -i in m-habi [H] 'poor man', but the only verbal radical with which this item may be associated is -habip- 'become poor'. There is no known form -hab- with comparable meaning.

Similarly in i-huhy 'stinginess' -y is not a true suffix because the nearest known verbal radical is -huhym- 'be stingy' and not -huh-.

(b) Monosyllabic stems with simple suffix

In monosyllabic stems composed of [H] radical and [N] suffix the T.D. of the suffix is subordinated to that of the radical in what could be termed a telescoping of tonal characteristics. An example of this type of word is m-f-i 'a mortal' (-f- 'die'). At the end of a sentence the stem of this item is realised as a final monosyllabic [H] element e.g. akasola mfi.

(c) Correlation of T.C. with T.D. in nominals with a simple suffix.

Mention has already been made in earlier chapters of the basic relationships existing between the T.D. of elements and the T.C. or E.T.C. of the words in which they figure. It has been stated for example that a [H] element may be associated with h tone on another element two syllables later, or on the second syllable of the following word, or on the [N] syllable immediately preceding an intervening [H] element.

It has also been noted (Chapter III, T.D. of Verbal Radicals) that a long vowel in a verbal radical, whether [N] or [H] counts as two syllables. As has been observed with such items as ntaale, the situation in nominals is not the same. Here the long [N] vowel counts as one syllable only e.g.

akabona ntaalé 'he saw a big one'

On attempting however to correlate the T.Cs. of associated nominals and verbals with respect to the T.D. of their constituents, it becomes evident that if the material is in some measure to be successfully systematised the vowel length of [H] radicals must be

taken into account. Unless this is done, [N] T.D. cannot be regularly assigned for example to the simple suffix -i, as the following items will show.

m-temi (+ h) 'chief' kutema (+ h) 'to rule'
m-baagi 'butcher' kubaagá 'to butcher'

The T.C. observed in mbaagi is common to all nominals which have a [N] suffix and which may be associated with a verbal having a [H] radical and a long vowel, e.g.

bu-saagó 'remainder' kusaagá 'to remain'
i-baagá 'place or act of butchery' kubaagá 'to butcher'

In such cases the T.C. of the nominal can be inferred from the T.D. of its constituents only by postulating that -baag-, -saag- each have the value of two syllables. The h tone on the [N] suffix -i, -o and -a may then be associated with the [H] radical which precedes it by two syllables. The alternative to this analysis would be to state that T.C. and E.T.C. is unpredictable in nominals which are associated with [H] verbal radicals with a long vowel, and which have a simple suffix -i, -o or -a. This type of item, which is quite common, would then have to be put in the category of words which are outside the system of T.Cs. which vary according to context. The latter course has been rejected in favour of regarding long [H] vowels in nominals as consisting of two syllables, since this regularises the tonal analysis of a large area of the language which

otherwise would not be amenable to systematisation. The following rule may thus be formulated:- in radical position in nominals a long [N̄] vowel counts as one syllable and a long [H̄] vowel as two syllables for tonal purposes. This is also true of other positions in the case of long [N̄] vowels. No conclusive evidence could be obtained for long [H̄] vowels in post-radical position.

II. Compound suffixes.

(a) A compound suffix is larger than the final vowel which constitutes a simple suffix. It contains all the elements which follow that portion of the stem associable with a simplex radical. Such elements may or may not be syllabic and resemble those found in a similar position in verbals.

The final syllable of these suffixes may be i, e, a, o or u, a situation which tallies exactly with that already noted for the simple suffixes with the exception of -a which is tonally distinct from the final -a found in compound suffixes, e.g.

i-bamb-a	[N̄]	'act of patching')	
		(Simple Suffix))	
			)	-bamb- [N̄] 'patch'
i-bamb-wa	[H̄]	'something to be patched')	
		(Compound Suffix))	

Some typical compound suffixes are listed below according to their T.D. As already noted, some nominals are associable with complex verbal radicals since no simplex form exists. In these cases there is no difference between the tonal characteristics of simplex radicals with compound suffixes (Type I), complex radicals

with simple suffixes (Type II) and complex radicals with compound suffixes (Type III). All three morphological types are dealt with under the head of "Compound Suffixes", but are distinguished by their type number in the righthand column. In the list which follows, suffix variants which depend on the quality of the radical vowel are shown in round brackets. It must not be assumed that the word-building processes implied in these examples are still live.

(b) [N] Compound Suffixes (ending in -i or -o)

(i) Ending in -i

<u>Suffix</u>	<u>Example</u>	<u>Assoc. Vbl. Rad.</u>	<u>Morphological Type</u>
-iki (-eki)	-binziki 'liable to snap'	-binz- [H] 'break' (tr)	I
-iji (-eji)	m-beeléji 'person who is fond of dressing up'	-beel- [H] 'have an improved appearance'	I
-uki (-oki)	-libuki [N] 'buoyant'	-libuk- [N] 'bob to surface of liquid'	II
-uji (-oji)	m-lagují [N] 'doctor'	-lagul- [N] 'give medical attention'	II
	m-bulují 'one who bores holes'	-bulul- [H] 'bore through'	II
-ani	m-lekani [N] 'one who separates from s/o'.	-lek- [N] 'leave' (tr)	I
-agují	m-lembagují 'habitual liar'	-lemb- [H] 'lie'	I

(ii) Ending in -o

<u>Suffix</u>	<u>Example</u>	<u>Assoc. Vbl. Rad.</u>	<u>Morphological Type</u>
-ilo (-elo)	ki-lipilo [N] 'labour in lieu of fine'	-lip- [N] 'pay for'	I
	i-babiló 'something used to scorch s/th with'	-bab- [H] 'scorch'	I
-ijo (-ejo)	i-lemejo [N] 'prohibition'	-lem- [N] 'deny'	I
	i-bakijó 'something used to ignite s/th with'	-bak- [H] 'flame'	I
-ulo (-olo)	m-bundulo [N] (Cl.3) 'stare'	-bundul- [N] 'stare'	II
-ano	i-lagano [N] 'mutual farewell'	-lag- [N] 'bid farewell'	I
	(cf. i-lagano [N] 'contract')	-lagan- [N] 'promise mutually'	II)
-anyo	ki-lekanyo [N] 'something that forks'	-lek- [N] 'leave' (tr)	I
-anijo	n-lekanijo [N] 's/th used for separating two parts which adhere'	-lek- [N] 'leave' (tr)	I

(c) [H] Compound Suffixes (ending in -e, -a, -u)

(i) Ending in -e

-ile (-ele)	ka-babile [H] 'method of scorching'	-bab- [H] 'scorch'	I
-ije (-eje)	ka-bakije [H] 'way of lighting a fire'	-bak [H] 'flame'	I

(ii) Ending in -a

<u>Suffix</u>	<u>Example</u>	<u>Assoc. Vbl. Rad.</u>	<u>Morphological Type</u>
<u>-ja</u> (<u>ya</u>)	<u>-xuupya</u> [H] 'that which makes s/th lose weight'	<u>-xuup-</u> [N] 'lose weight'	I
<u>-uja</u> (<u>-oja</u>)	<u>m-caguja</u> [H] 'some-one who helps to warn someone' (As l + <u>-ja</u> is realised as <u>-ja</u> , this example may be analysed morphologically as m-cagul- <u>ja</u> , i.e. complex radical + compound suffix - Type III)	<u>-cagul-</u> 'put someone on his guard'	III
<u>-ija</u> (<u>-eja</u>)	<u>m-lemeja</u> [H] 'one who prevents'	<u>-lem-</u> [N] 'refuse, deny'	I
<u>-wa</u>	<u>i-bambwa</u> [H] 'something to be patched'	<u>-bamb-</u> [N] 'patch'	I
<u>-iwa</u>	<u>bu-beejiwa</u> [H] 'improvement in health'	<u>-beel-</u> [H] 'have an improved appearance'	I

(iii) Ending in -u

<u>-iku</u> (<u>-eku</u>)	<u>-binziku</u> [H] 'that which has snapped'	<u>-binz-</u> [H] 'break' (tr)	I
<u>-uku</u> (<u>-oku</u>)	<u>-caguku</u> [H] 'alert'	<u>-caguk-</u> 'be on one's guard'	II

III Tonal characteristics of nominals with compound suffixes

The T.D. of a nominal stem depends as much on the suffix as on the radical. It is therefore of the utmost importance to establish the T.D. of the suffix and also its composition from a tonal viewpoint. In the absence of a regular process of commutation

it is at times only by making inferences from comparisons between words that we can arrive at any conclusion regarding the tonal characteristics of compound suffixes.

(a) The T.D. of compound suffixes

(1) On many occasions nominals associable with [N] verbals have [H] T.D., e.g.

-lamik_i [H] 'long lived', -lam- [N] 'live long'

(2) On the other hand some nominals associable with [H] verbal radicals are not followed by h tone, e.g.

-binzik_i 'liable to snap' -binz- [H] 'break' (tr)

Assuming that in both examples, which are absolutely typical, the T.D. of the nominal radical is the same as that of the verbal radical, the [H] T.D. of -lamik_i can only be associated with the tonal characteristics of one or all of the remaining elements of the stem. Similarly in (2) the absence of following h tone must be attributed to the tonal characteristics of -ik_i or -i.

In (1) it can be proved that the entire compound suffix has [H] T.D. In the first place, were the [H] characteristics of the stem associable with only the final syllable -u, this element would be realised in final sentence position as a low tone (Rule 4), which is not the case. Secondly, when preceded by a [H] element a h tone is heard not on -ik- but on -lam- indicating that -ik- is an intervening [H] element. Thus the stem should be marked -lamik_i [H]

In (2) the absence of h tone after -binzik_i and the presence of

h tone on the final syllable is capable of two interpretations, (i) that the entire suffix -ikj has [N] T.D., (ii) that the stem has a fixed T.C. A brief examination of the first hypothesis shows its suitability for inclusion in the general construct of the tonal system, and enables us to discard the second as superfluous. Assuming that the radical element in binzikí has the same T.D. as in the associated verbal, and that -ikj is a [N] suffix, h tone associable with -binz- should be heard two syllables later on -j, which is indeed the case.

Thus instead of extending the area of unsystematizable material by postulating that a large number of associated nominal stems have fixed T.C., items of this type may readily be incorporated into the system of [N] and [H] T.D.

Leaving out of account those suffixes occurring in words with fixed T.Cs. which are not amenable to systematization, it can be shown by substitution, commutation and comparison that all compound suffixes in nominals may be divided into two tonal categories, [N] and [H] as indicated in the lists already quoted. A description of this process would be too lengthy to fall within the scope of this thesis. A regular feature of this categorization is that all compound suffixes ending in -j or -o are [N] while all those which end in -e, -a or -y are [H]. In each category the T.D. of the whole suffix is the same as that of the final vowel.

(b) The composition of compound suffixes

In the examples quoted above, where the nominal is associable with a simplex verbal radical, it is a simple matter to determine which elements constitute a compound suffix. When the association is with a complex radical the extent of the compound suffix is more difficult to establish. As has already been noted, morphological and tonal analysis of the suffix frequently fails to coincide. In these circumstances we are concerned with the suffix as indicated by tonal analysis only.

Thus the dependent nominal stem -ceenuk_y [H] 'liable to split' may be associated with the complex verbal radical -ceenuk- [N] 'split' (intr.). As no simplex verbal radical exists the suffix morphologically is -y. Assuming that the nominal and verbal radicals both have [N] T.D. it would seem from a morphological viewpoint that the [H] T.D. of -ceenuk_y is associable with the suffix -y. This being the case it would be reasonable to expect a h tone on the second syllable of -ceenuk_y when a [H] element precedes it. (Note that -ceen- counts as one syllable as it is [N] and in a nominal, while i- is a non-syllabic¹ dependent prefix in Class 5), e.g.

[H] → i-ceenúku_y [H]

In actual fact such is not the T.C. as h tone is heard on -céen- instead, thereby giving rise to the assumption that -uk- is [H] and that [H] T.D. may be associated with the remainder of the stem

1. See the Appendix on 'Syllables - Prefix Shape'.

after -ceen-, e.g. -ceenuku [H] .

Similar behaviour may be observed in the dependent nominal -galukia [H] (pronounced -galuca) 'liable to alter things', associable with the complex radical -galuk- [N] 'alter' (intr.), e.g.

mtemi m-gálukia [H] 'a chief liable to alter things'

Since the dependent prefix m- is non-syllabic the h tone on -gal- instead of on the next syllable indicates that the [H] T.D. belongs to the rest of the stem after -gal- and not merely to the final -a or -ia, i.e. -galukia [H] .

Another interesting example is to be found in the dependent nominal -ceelemeku [H] 'slanting', associable with -ceelemek- [N] 'set something at an angle'. When this stem has a non-syllabic prefix and is preceded by a [H] element, h tone appears on -céel-, proving that [H] T.D. extends from -em- onwards. In the case of the cognate -ceelemekejo [N] 'serving to set something at an angle', in a similar tonal context h tone is heard on -em-, that is to say on the second syllable of the word. For tonal purposes therefore the compound suffixes in these two examples are -emeku [H] and -emekejo [N] .

Thus even where no simple associated verbal radical exists, the tonal behaviour of stems composed of [N] radical and [H] suffix is such that the first syllable may be counted as a simplex radical and the remainder as a compound suffix. It should be noted that while the T.D. of compound suffixes can easily be determined, the

composition of [N] suffixes when in combination with [N] radicals cannot be directly determined by tonal analysis. The example -ceelemekejo [N] is treated as if compounded of -ceel- + -emekejo [N] (and not -ceelemek- + -ejo [N]) because the former would be the tonal structure were the suffix [H] as in -ceel- + -emeku [H]. This practice of inferring the composition of some suffixes by analogy has been followed throughout in the absence of any evidence that stems with suffixes of different T.D. have a basically different tonal structure.

(c) Eccentric items

Although it is impossible to predict the compound suffixes which will be found in combination with a given radical, in most cases the T.D. of a word can be inferred from the T.D. of its associated verbal radical and the shape of its compound suffix.

However, if the following items are regarded as related to the respective radicals quoted, their T.Cs. are eccentric:

m-sambo [N] 'riot' Cl.3, -samb- [H] 'become riotous'
(instead of m-sambo [H])

m-wiilwá 'person who is told of something' Cl.1, -wiil- [H] 'tell'
(instead of m-wiilwa [H])

j-bimbá 'swelling' Cl.5, -bimb- [H] 'swell'
(instead of j-bimba [H])

lu-balige [H] 'throw of a stick' Cl.11, -balig- [H] 'throw a stick at'
(instead of lu-balige [H])

(C) MISCELLANEOUS TONAL FEATURES

I. The tonal characteristics of compound nominals.

Compound nominals are those combinations of nominals which have no extra dependent prefix to link them together.

Generally speaking their tonal behaviour is anomalous with regard to their component words. This lack of conformity is shown in many ways, but a typical example will suffice to indicate the impossibility of correlating the T.D. of the constituents and the whole, e.g.

ki-lungu [H] Cl.7 'snail-shell'

ma-íhwa [H] Cl.6 'prickles'

ki-▼lungú-majhwá▼ Cl.7 'hedgehog'

II. Proper names

Systematic commutation is of course impracticable with proper names. All that can be established is the T.D. of the word itself, no reference being made to that of its components. This type of word covers too large a linguistic area to receive exhaustive treatment in a work of this scope.

Sufficient evidence was gathered to show that such nominals display highly idiosyncratic tonal behaviour. In many cases proper names are loan words. It has been established by comparing these words with cognate nominals that even when not borrowed they form part of a different tonal and grammatical system. The following examples illustrate this:

m-hoja [H] 'pacifier' Cl.1 (Associated with -hol- 'be peaceful')

ba-hoja [H] 'pacifiers' Cl.2

(Note that the stem should be analysed as -hol-ia [H] 'cause')
(to be peaceful'.

Mhója [H] name bestowed on a boy born at the end of a period
of upheaval, war etc. Cl.1a

baa Mhója [H] the various persons having this name. Cl.2a

III. Loan words

These are generally rendered conspicuous by anomalous tonal
behaviour apart from any foreign sounds which they may contain.

Fixed T.Cs. outside the system of [N] / [H] T.D. are frequently found,
e.g.

bu-lengéedi 'blanket' Cl.14

In other cases a fixed h tone is heard in conjunction with [H]
behaviour e.g.

balabála [H] 'main road' Cl.9a.

These words in company with many others appear to have come into
Sukuma from Swahili. Almost all have a fixed high or high falling
tone on the penultimate syllable - a relic of Swahili syllabic
prominence in that position.

As loan words were found to be not amenable to systematisation
with the rest of the tonal material examined in previous Chapters,
no further remarks will be made here on this subject.

CONCLUSIONS

The main conclusion emerging from the evidence presented is that tone forms an integral part of the structure of Sukúma. Lexical entities such as verbal radicals and nominal stems may be assorted into classes according to their tonal behaviour. Similarly concord elements in nominals and verbals exhibit clearly tonal distinctiveness according to grammatical class.

On the question of tonal distinctiveness the following important methodological point has emerged. Although the establishment of tonal distinctiveness of elements is based on substitution and commutation, there are many cases where this cannot be applied. In such circumstances, tonal distinctiveness has had to be inferred by comparing the tonal behaviour of the element concerned with that of another element whose tonal distinctiveness has been determined by substitution.

It has also been shown that there is more than one system of behaviour, a fact which has necessitated the development of special devices to indicate tone.

These conclusions have been reached by demonstrating the correlation of a high tone heard in speech with some element other than the one actually bearing the high tone. It has been shown that if several adjacent syllables are essentially high, only one high tone is heard in speech. Thus a high speech tone may sometimes represent the

essentially high tonal characteristic of an accumulation of elements. As a result of this the tonal contour of the sentence is composed of a series of normal tones with a few high peaks. Since the normal tones may be heard on either essentially high or essentially normal elements, it is not possible to correlate normal speech tones with essentially normal elements in the same way as high speech tones may be associated with essentially high elements.

It has frequently been pointed out that structural and tonal analyses do not necessarily coincide in Sukuma. This fact is especially noticeable at word junctions where the final and initial sounds of adjacent words coalesce to form one syllable. From this it may be concluded that in Sukuma tonal characteristics are not relevant to questions of word division.

It may not be out of place to mention a corollary of the conclusions just presented which bears on the question as to which is the best system of tone marking for texts. Owing to the extreme complexity of the correlations, the transposition from systematic to speech tones is very complicated. Experience has however shown that when speech tones alone are indicated in a text, it is an easy matter to reproduce the tones, but only fluent speakers of the language understand the text. On the other hand, if systematic tones are marked by underlining and by the other devices described, the meaning of the text is in no doubt to a student of the language, but it is a highly complicated task to produce the correct speech tones from this transcription. A

combined system incorporating symbols for both speech and systematic tones would, in theory, be ideally suited to this situation. It is doubtful however whether so complex an arrangement would really constitute a practical solution to the problem.

ORTHOGRAPHY

As far as practicable the transcription of examples is systematic rather than phonetic. The degree of systematisation however is not constant since in some cases a more fully developed systematisation would produce a transcription that would be complicated and misleading. Thus for example in the pair of radicals -sol- 'choose' and -soj- 'cause to choose', the latter item could be represented by the more systematic rendering -sol-*j*-, where *j*- indicates a causative extension. Although l is regularly heard as j when this extension immediately follows, for the sake of clarity the more phonetic transcription -soj- has been employed.

Most of the consonant letters used are self-explanatory. Aspiration is not marked although this is a regular feature of the voiceless plosives. Plosive and bilabial fricative varieties of b are indicated by *ɸ* and b respectively.

There are seven vowel symbols: *j*, i, e, a, o, u, *y*, the closer variety of i and u being distinguished by a cedilla. Vowel length is significant. vowels which are heard as long are shown by doubling the symbol e.g. *jj*, aa, with the exception of those followed by a nasal compound or preceded by a semi-vowel. As all vowels in these positions show no distinction of quantity though in fact they tend to sound long, only those which for tonal purposes count as two syllables are marked by a double symbol. Long vowels heard when

CV- prefixes coalesce with -VCV stems have been resolved into their component parts for the purposes of this work.

Semi-vowels are written w and y unless they count as a syllable for tonal purposes. In such cases they are written ɥ and ɿ e.g.

ba-bɿajɿ 'parents' [babyaajɿ]

The independent and dependent prefixes quoted symbolise the grammatical agreement pattern and not the phonetic realisation. This is especially true of nasal prefixes when in combination with different consonants in initial stem position, as can be seen from the typical relationships between systematic and phonetic spelling listed below. In these examples square brackets enclose phonetic renderings. Other conventions employed are as follows:

1. A small circle under a consonant indicates devoicing.
2. The symbol $\bar{}$ denotes modification of the normal phonetic connotation of the letter over which it occurs. In some cases this may be heard as length, e.g. in nasals, but in others a consonant cluster or devoicing may be heard e.g.
[\bar{w}] = [vw], [\bar{z}] = [zz].
3. A nasal consonant enclosed in round brackets is heard only when preceded by a vowel.

Classes 1 and 3 (m-)

Classes 9 and 10 (n-)

Voiced C₁

m- + \emptyset > [ɸ]	m- \emptyset ipɪ [ɸipɪ] 'one who sucks' Cl.1	n- + \emptyset > [ɸ]	n- \emptyset egeso [ɸegeso] 'firestick' Cl.9
b > [m]	m-bonɪ [monɪ] 'onlooker' Cl.1	b > [ɸ]	n-bogò [ɸogò] 'buffalo' Cl.9
d > [d̄]	m-dakɪ [d̄akɪ] 'ill-tempered person' Cl.1	d > [d̄]	n-dama [d̄ama] 'calf' Cl.9
g > [ḡ]	m-getá [ḡetá] 'awl' Cl.3	g > [ḡ]	n-gobo [ḡobo] 'skin' Cl.9
j > [j̄]	m-jundu [j̄undu] 'kind of tree' Cl.3	j > [j̄]	n-jigu [j̄igu] 'reparation' Cl.9
v > [v̄]	m-vule [v̄ule] 'kind of tree' Cl.3	v > [v̄]	n-vi [v̄i] 'white hair' Cl.9
z > [z̄]	m-zengo [z̄engo] 'habitat' Cl.3	z > [z̄]	n-zobe [z̄obe] 'donkey' Cl.9
l > [n̄]	m-lage [n̄age] 'soot' Cl.3	l > [d̄]	n-lobɪ [d̄obɪ] 'kingfisher' Cl.9
ly > [ɲ̄]	m-lyango [ɲ̄ango] 'door' Cl.3	ly > [d̄y]	n-lyeehy [d̄yeehy] 'gentle creature' Cl.9
w > [ɲw]	m-wiijɪ [ɲwiijɪ] 'one who tells news' Cl.1	w > [w̄]	n-wa [w̄a] 'dog' Cl.9
y > [ɲ̄]	m-yegɪ [ɲ̄egɪ] 'happy person' Cl.1	y > [ɲ̄]	n-yango [ɲ̄ango] 'black ant' Cl.9
m > [m̄]	m-manɪ [m̄anɪ] 'knowledgeable person' Cl.1	m > [m̄]	n-mamba [m̄amba] 'kind of fish' Cl.9
n > [n̄]	m-noge [n̄oge] 'blood from nose' Cl.3	n > [n̄]	n-nonɪ [n̄onɪ] 'bird' Cl.9

Classes 1 and 3 (m-)

Classes 9 and 10 (n-)

Voiced C₁ (continued)

m- + p >[p]	m-nyeeci [nyeeci] 'stealthy person' Cl.1	n- + p >[p]	n-nyaji [naji] 'one which runs away' Cl.9
ŋ >[ŋ]	m-ŋwi [ŋwi] 'drinker' Cl.1	ŋ >[ŋ]	n-ŋwiina [ŋwiina] 'crocodile' Cl.9

Voiceless C₁

m- + p >[(m)p]	m-peeji [(m)peeji] 'good runner' Cl.1	n- + p >[mh]	n-pala [phala] 'antelope' Cl.9
t >[(n)t]	m-temi [(n)temi] 'chief' Cl.1	t >[nh]	n-tala [nhala] 'platform' Cl.9
k >[(ŋ)k]	m-kómà [(ŋ)kómà] 'leper' Cl.1	k >[ŋh]	n-kalà [ŋhalà] 'badger' Cl.9
c >[(n)c]	m-ci [(n)ci] 'dead person' Cl.1	c >[ph]	n-cilu [philu] 'stupid creature' Cl.9
f >[(m)f]	m-fumy [(m)fumy] 'medicine man' Cl.1	f >[(m)f]	n-fy [(m)fy] 'dead thing' Cl.9
s >[(n)s]	m-sumbi [(n)sumbi] 'maker' Cl.1	s >[(n)s]	n-synyny [(n)synyny] 'bamboo cane' Cl.9
h >[(m)h]	m-hayo [(m)hayo] 'word' Cl.3	h >[(ŋ)k uiaasp.]	n-hayo [(ŋ)kayo] 'proverbs' Cl.10
>[mh]	m-hoja [mhoja] 'pacifier' Cl.1	>[nh]	n-himbijj [nhimbijj] 'kind of snake' Cl.9
>[ŋh]	m-halaliijj [ŋhalaliijj] 'argumentative person' Cl.1		
	m-hĩndi [ŋhĩndi] 'an Indian' Cl.1		

Where a CV- prefix is shown with a -VCV stem, in speech the prefix

vowel is heard with the same quality as the stem vowel with which it is in junction. The prefix consonant often has a y or w quality depending on the systematic relationship of the vowels in junction, e.g.

li-oleló 'branding iron' [lyoolel^hó]

li-ina [H] 'name' [li^hina]

my-ana [H] 'child' [ɲwaana]

my-oto [H] 'fire' [mooto]

tone marks

The letters h, m, n and l are often used as convenient abbreviations for high, mid, normal and low speech tones.

In examples quoted h tones are shown by acute accents on the appropriate syllables, while n tones, which are by far the most numerous are left unmarked. Falling tones on long vowels are indicated by an acute accent on the first vowel, e.g. batáale, and rising tones by the same diacritic on the last vowel, e.g. jiáguapí. The rare l tones are indicated by a grave accent. m tones are regarded as subsidiaries of h tones, the difference in level being treated as a feature of the junction of two h tones. This feature is indicated by a superior exclamation mark and is referred to as "tone slip" (See M. Guthrie Bantu Languages of Western Equatorial Africa p.10).

All elements with [H] T.D. are underlined and any h tones marked with an acute accent, e.g.

kupululá 'to bore through'

When a word or abstracted element has [H] T.D. which is not realised in the example quoted, this fact is noted by putting [H] behind it and underlining the [H] element, e.g.

-pulul- [H] 'bore through'

This may also be indicated by the symbols + h after the word or element, e.g.

mtemi + h

Words ending with a monosyllabic \bar{H} element are marked by underlining the \bar{H} element and putting \bar{H} after the word e.g. n-basa \bar{H} 'axe'. To mark the final monosyllabic \bar{H} element with the grave accent indicative of low speech tone would imply that the example quoted was not an abstraction but an isolated word in final sentence position e.g. nbasà. 'An axe!' (See Tone Rule 4).

Words or abstracted elements which have no H manifestations whatsoever are marked with \bar{N} e.g. -libukj \bar{N} 'buoyant'.

Words or elements which are outside the system of varying T.Cs. and E.T.Cs. are distinguished by enclosing them in small inferior v's thus v_{talá}. Fixed tones may also be referred to by the symbols (N) and (H).

Some words have fixed speech tones but are also associated with h tone in the following word. In these cases the second v is omitted and the \bar{H} element underlined, e.g. akabona bá!kóma batáale.

In abstraction the \bar{H} tonal manifestation is indicated by putting \bar{H} after the word e.g. bakóma \bar{H} .

The symbol $\bar{H} \rightarrow$ is sometimes used to show that a \bar{H} element precedes the item quoted. Similarly the convention + h placed behind an item indicates that in suitable circumstances a h tone is heard after it. Occasionally + n is used in this position denoting the absence of h tone associable with the item in subsequent words.

There is a further convention that an acute accent above the hyphen occurring after the radical denotes that a h tone will be heard on a [N] suffix in this position.

SYLLABLES

For the present purpose a syllable may be defined as a fragment bearing a unit of the tone pattern. It is not necessary to define it in terms of its consonants and vowels. Indeed in words of different categories an apparently similar fragment may consist of one syllable in one case and two in another. This is exemplified in Section II of this appendix.

A non-syllabic element is one which is not to be taken into account when inferring the incidence of a high speech tone associable with a preceding essentially high element.

I. Prefix Shape

The syllabic value of a prefix is not determined exclusively by its shape. Indeed the shape and T.D. of the stem with which it occurs has far more bearing on the value of a prefix in the tonal structure of the language than has the shape of the prefix itself. The over-riding rule appears to be that coalescing elements count as separate syllables if they are of different T.D.

(A) CV- prefixes may be syllabic or non-syllabic according to the shape and T.D. of the stems with which they combine.

(i) With -CVCV stems, CV- prefixes are always syllabic regardless of the T.D. of the stem, e.g.

Cl.4	mí-gono	[N]	'traps'	akabona	mí-góno	mí-taale	'he saw big traps'
							etc.
" 4	mí-gota	[H]	'kind of tree'	mí-gota	mí-táale		

Cl.4 mǐ-kubá (N.H.) 'kind of tree' akabona mǐ-kubá-mǐ-taale 'he saw, etc.'

" 2 ba-kóma [H] 'lepers' bá-kóma ba-táale

In each of these cases the CV- prefix counts as a syllable for the purpose of predicting the incidence of h tone associable with a preceding [H] element.

(ii) With -VCV stems the T.D. of the stem must be taken into account

(a) With [N] stem

Cl.4 mǐ-obo [N] 'holes', akabona mǐ-obó mǐtaale 'he saw big holes' - in which mǐ- does not count as a separate syllable from -ob- for tonal purposes.

(b) With [H] stem and no fixed high tone

Cl.4 mǐ-oto [H] 'fires', akabona mǐ-oto mǐ-táale 'he saw big fires' - where mǐ- is a separate syllable from -ot- and bears a high speech tone.

(c) With a fixed (H) tone stem with or without [H] tone

Cl.4 mǐ-úbu [H] 'kind of tree' pl. akaboná-mǐ-úbu mǐ-táale 'he saw big etc.'

Cl.4 mǐ-andú (N.H) 'baobab trees' akaboná-mǐ-andú-mǐ-taale "

In this case the CV- prefix is outside the system of varying T.Cs. since its tone is always normal.

(B) Nasal or vowel prefixes (as in Classes 1, 3, 5, 9, 10) are non-syllabic with [N] -CVCV stems, and syllabic with [H] -CVCV stems.

(i) With -CVCV stems

(a) With [N̄] stem

Cl.3 m-gono [N̄] 'trap', akabona m-gonó m-taale 'he saw a big trap'
Here m- must be considered as non-syllabic if the h tone on -ó is to be described as the [H̄] behaviour of -bon- on the second syllable of the following word. (See Rules of Tonal Behaviour No.2, Ch.II).

(b) With [H̄] stem and no fixed (H) tone

Cl.3 m-gota [H̄] 'kind of tree' akabona m-gota m-taalé 'he saw a big etc'

In this case m- counts as a syllable and bears the h tone associable with -bon-.

(c) With a fixed (H) stem with or without [H̄] tone

Cl.1 m-kóma [H̄] 'leper', akaboná m-kóma m-taalé 'he saw a big leper'

Cl.3 m-kubá (N.H) 'kind of tree' akaboná m-kubá m-taale 'he saw a big etc.'

In this case the nasal or vowel prefix is outside the system of varying T.Cs. since its tone is always normal.

(ii) Words with -VCV stems in Classes 1, 3, 5, 9, 10 have prefixes of the CV- type.

(C) Zero prefixes

Vowels which precede zero prefixes are heard as long, but their tonal syllabic value is in no way affected by this lengthening. As this is a regular feature of zero prefixes, no attempt has been made to indicate this length in any examples which may occur in this work.

(D) Extra Dependent Prefixes

A full account of the T.D. of E.D.Ps. will be found in the appropriate sections of Chapter IV. In addition however it should be noted that a h tone on a syllable containing an E.D.P. is always heard as a rising tone.

In this connection, for tonal purposes a syllable may be taken to consist of an E.D.P. + junctive -a-, the latter having the same T.D. as its E.D.P. In the case of D.Ns. with double prefixes the syllable may have the following constituents: E.D.P. + junctive -a- + the first part of the double D.P. e.g. the Extra D.N.

yi-a-yi-apí [N̄] (Cl.9) 'of the black ones' (Cl.4) when preceded by a [H̄] element has the following T.C.:

[H̄] → yi-a-yí-apí [N̄].

The high falling tone on -yí-apí is the usual realisation of h tone on a long [N̄] vowel (see below "Long vowels in nominals and verbals"), and occurs in the second syllable of the word taking into account the above definition of a syllable containing an E.D.P.

The realisation of h tone as a rising tone on the E.D.P. syllable may be illustrated by placing a [H̄] element before the Extra D.N. yi-a-gu-apí (Cl.9) 'of the black one' (Cl.3) thus:

[H̄] → yi-á-gu-apí

II. Long vowels in nominals and verbals

(A) For tonal purposes a [N̄] long vowel counts as two syllables in a verbal but as only one in a nominal, e.g.

ku-ga-káaba 'to exchange them' (Cl.6)

but akabona ntaalé 'he saw a big one' (Cl.9)

ku-gokóola 'to draw in a scoop net'

but i-gokooló (Cl.5) 'a scoop net'

It should be noted that in these circumstances a h tone is heard on a long vowel as high falling. The realisation of h tone on a long vowel as a rising tone is illustrated in Section ID of this appendix.

The necessity of distinguishing between an element with a long vowel which counts as two syllables, and two separate but juxtaposed elements each counting as one syllable is dealt with in Chapter III, Sec.I, (b)(iv)3.

(B) A [H] long vowel counts as two syllables in both nominals and verbals, e.g.

kubaagá 'to butcher' (an animal)

m-baagí 'a butcher'

III. Coalescence of radical with formative or extension

When coalescence occurs between the radical vowel and the formative or extension, each element counts as a separate syllable unless both have [N] T.D. For example in m-bíají -bí- is [H] and the formative and suffix -ají is [N]. Thus the h tone on -í may be associated with the [H] T.D. of bí- realised two syllables later.

Similarly in the independent nomino-verbal ku-b_ialá the h tone on the suffix is associable with the [H] T.D. of -b_i-. A similar principle governs syllabic value when coalescence takes place between a verbal radical beginning with a vowel and the vowel of a preceding verbal constituent. (See Chapter III 'T.D. of Radicals').

IV. Nasal compounds and intervening [H] elements.

Sometimes h tone associable with a preceding [H] element is not realised on the second syllable of the following word because another [H] element intervenes. In such cases, when the intervening [H] element is immediately preceded by a nasal compound, the h tone is heard on the nasal part of the compound as if it had syllabic value, e.g.

mtem_i u-ńgì. 'Another chief'

akabona n-numbà. 'he saw a house'

CONCORD ELEMENTS

	SINGLE INDEPENDENT PREFIX	DOUBLE INDEPENDENT PREFIX	S E R I E S I	
			SINGLE DEP. PREFIX	DOUBLE DEP. PREFIX
1	m-, 1 m-, 2	um-, umy-, u- ²	m-, 1 m-, 2	um-, umy-
2	ba-, 1	abe-	ba-, 1	aba
3	m-, 1 m-, 2	um-, umy-	m-, 1 m-, 2	um-, umy-
4	m-, 1 m-, 2	im-, 1 m-, 2	m-, 1 m-, 2	im-, 1 m-, 2
5	i-, 1 i-, 2	ii-, 1 i-, 2	i-, 1 i-, 2	ii-, 1 i-, 2
6	ma-	ama-	ma-	ama-
7	ki-, 1 ki-, 2	iki-, 1 ki-, 2	ki-, 1 ki-, 2	iki-, 1 ki-, 2
8	si-, 1	isi-, 1	si-, 1	isi-, 1
9	n-, 1	in-, 1	n-, 1	in-, 1
10	n-, 1	in-, 1	n-, 1	in-, 1
11	lu-	ulu-	lu-	ulu-
12	ka- ¹⁰	aka-	ka-	aka-
13	tu-	utu-	tu-	utu-
14	bu-	ubu-	bu-	ubu-
15	ku-	uku-	ku-	uku-
16	ha-	aha-	ha-	aha-
17	ku-	uku-	ku-	uku-
18	my-	umy-	my-	umy-

The following genders are commonly found: 1/2, 3/4, 5/6, 7/8, 9/10, 11/10,
12/13, 14/6, 15/6.

S E R I E S II	UNSTABLE SELECTOR		STABLE SELECTOR		RELATIVE HEAD WORD
	NEAR	FAR	NEAR	FAR	
u-	uyu	uyo	duyu	duyo	uyo
ba-	aba	abo	bababa	bababo	abo
ga-	uga	ugo	gaga	gago	ugo
yi-	iyi	iyu	yiyi	yiyu	iyu
li-	ili	ilo	lili	lilo	ilo
ga-	aga	ago	gaga	gago	ago
ki-, 1 ki-, 2	iki, isi	isyo	ki-, 1 ki-, 2	isyo	isyo
si-	isi	isyo	si-, 1 si-, 2	isyo	isyo
yi-	iyi	iyu	yiyi	yiyu	iyu
li-	ili	ilo	lili	lilo	ilo
lu-	ulu	ulo	lulu	lulo	ulo
ka-	aka	ako	kaka	kako	ako
tu-	utu	uto	tutu	tuto	uto
bu-	ubu	ubo	bubu	bubo	ubo
ku-	uku	uko	kuku	kuko	uko
ha-	aha	aho	haha	haho	aho
ku-	uku	uko	kuku	kuko	uko
my-	umy	umo	myumy	myumo	umo

DEP. VERBAL PREFIX	DOUBLE DEP. VERBAL PREFIX	INFIXED OBJECT SUBSTITUTE	POSTPOSED OBJECT SUBSTITUTE	EXTRA DEP. PREFIX
e-, 5 u- ⁶	u-	-e-, -my-	we, phe	
ba-, 5	aba-	-ba-	bo, booyi	
ga-	uga-	-ga-	go	
yi-	iyi-	-yi-	yo	
li-	ili-	-li-	lyo	
ga-	aga-	-ga-	go	
ki-, 1 ki-, 2	iki-, isi-	-ki-, -si-	ayo	
si-	isi-	-si-	ayo	
yi-	iyi-	-yi-	yo	
li-	ili-	-li-	lyo	
lu-	ulu-	-lu-	lwo	
ka-	aka-	-ka-	ko	
tu-	utu-	-tu-	two	
bu-	ubu-	-bu-	bwo	
ku-	uku-	-ku-	kwo	
ha-	aha-	-ha-	ho	
ku-	uku-	-ku-	ko	
my-	umy-	-my-	mo	

This series has the same shape as that of the single dependent prefix (series II)

See attached list
-ago
-ayo
-alo
-ago
-aco
-asyo
-ajo
-alwo
-ako
-akwo
-akwo
-aho
-ako
-amo

POSSESSIVE
STEMS

The 3 Persons of Classes 1 and 2

CLASS	PERSON	STABLE	D.V.P.	O.S.	Stable Selectors		POSSESSIVE	POSTPOSED
		FORM			Near	Far	STEMS	FORM
<u>1</u>	1st	{ <u>neene</u>	<u>n-</u>	<u>-nj-</u>	Stable	Stable	<u>-ane</u>	<u>neene</u>
		<u>ne</u>						
					Form	Form		
					+ <u>úuyu</u>	+ <u>úuyo</u>		
	2nd	{ <u>beebe</u>	<u>u-</u>	<u>-ku-</u>	" "	" "	<u>-ako</u>	<u>beebe</u>
		<u>be</u>						
								<u>ñho</u>
	3rd	{ <u>wei</u>	<u>a-</u>	<u>-mu-</u>	<u>úuyu</u>	<u>úuyo</u>	<u>-akwe</u>	<u>we</u>
		<u>we</u>						
			<u>u-</u>	<u>-n-</u>				<u>ñhwe</u>
<u>2</u>	1st	<u>ba-íswe</u>	<u>tu-</u>	<u>-tu-</u>	Stable	Stable	<u>-íswe</u>	<u>ba-íswe</u>
					Form	Form		
	2nd	<u>ba-inwe</u>	<u>m-</u>	<u>-m-</u>	+ <u>báaba</u>	+ <u>báabo</u>	<u>-ínwe</u>	<u>ba-inwe</u>
			<u>my</u> ⁶	<u>-my-</u>				
	3rd	{ <u>booyi</u>	<u>ba-</u>	<u>-ba-</u>	<u>báaba</u>	<u>báabo</u>	<u>-ábo</u>	<u>booyi</u>
		<u>bo</u>						
								<u>bo</u>

NOTES.

1. This symbol indicates a potential scatter. Realisation in speech depends on the initial sound of the stem (see appendix "Orthography - Realisation").
2. Before a stem beginning with a vowel.
3. Although only one symbol is used to represent the double form of a zero independent prefix, the variety of tonal behaviour peculiar to double independent prefixes is still present (see Chapter IV "Independent Prefixes - Double") e.g.

akabona dongó (Cl.9) 'he saw a frog'

akabona í-dongo 'he saw the frog'

4. Where both ki- and si- forms are shown for Cl.7 they may be interchanged by any speaker in any circumstances without modifying the meaning.
5. These elements are in the 3rd person. A full list of all the forms is given separately.
6. Before vowel tense signs.
7. In some dialects y replaces g.
8. No tones are marked on elements of Cls.16/17/18 as their behaviour is somewhat indeterminate. For more detailed information, reference should be made to the appropriate sections of Chapters III and IV.
9. While infixes O.Ss. in Cls.16/17/18 are found in some types of Sukuma they did not occur in the variety investigated.
10. The pejorative affix ká- which does not operate an agreement is not included in this table. Reference is made to it under "Pre-radical elements in nominals" in Chapter V.
11. In independent nominals subsidiary classes also occur; these are indicated by placing a letter after the class number e.g. 1a, 2a, 7a, 8a, 9a, 10a.

DEPENDENT NOMINALS OF SERIES I AND II

<u>Series I</u>		<u>Series II</u>	
-taale [N]	'big'	-aza [H]	'red'
-ingi [H]	'many'	-ngi [H]	'other'
-gumba [N]	'barren'	-api [N]	'black'
-lulu [H]	'bitter'	-ape [H]	'white'
-poky [N]	'blind'	-akale [N]	'of long ago'
-dyumizu [H]	'blunt'	-awijisy [H]	'jealous'
-gali [H]	'broad'	-ene [H]	'same'
-nogu [H]	'easy'	-ane [H]	'my'
-pizu [H]	'alert'	-ako [H]	'thy'
-sekia [H]	'comic'	-akwe [H]	'his, her'
-nyilizu [H]	'cool'	-iswe [H]	'our'
-aka [H]	'covetous'	-inwe [H]	'your'
-saji [N]	'mad'	-abo [H]	'their'
-kali [H]	'fierce'		
-doto [N]	'wet'		
-gimy [H]	'daring'		
-fu [H]	'dead'		
-diimu [H]	'hard'		
-kenaagujj [N]	'destructive'		
-lema [H]	'crippled'		
-umy [H]	'dry'		
-angu [N]	'quick'		

TENSES

The tenses mentioned in this work are listed below with their meanings. It is not claimed that this list is exhaustive. The numbers in the left-hand column are intended as a means of identification; beyond this they have no significance.

<u>Tense</u> <u>No.</u>	<u>Infix</u>	<u>T.S.</u> <u>Suffix</u>	<u>Example</u>	<u>Meaning</u>
1	✓ka✓	-a	a.kā.sola	'he chose' (yesterday)
2	-ku-	-a	akusola	'he will choose' (near future)
3	-a-	-a ¹	uasolá	'he has just chosen'
4	-a-	-aga ¹	uasolága	'he chose' (today)
5	-a- ✓á✓	-aga ¹ -aga ²	uasolaga + h ✓báá✓solaga + h	'he used to choose' 'they used to choose'
6	-lii-	-a ³	aliisola	'he was choosing'
7	-a-	-ile + h	uasóile + h	'he has chosen'
8	-ku-	-aga	akusolaga	(i) 'he is choosing' (ii) 'he habitually chooses'
9	-a- ✓á✓	-a ¹ -a ²	uasola + h ✓báá✓sola + h	'he chose') Distant 'they chose') Past
10	-	-ile + h ³	asolile + h	'his choice is made' (Present, Aspect of Completion)

1. These tonal characteristics appear only when the D.V.P. is in Classes 1, 4 or 9.
2. Applicable only when the D.V.P. is in a class other than 1, 4 or 9.
3. The tonal behaviour of this tense is unamenable to systematisation.

<u>Tense</u> <u>No.</u>	<u>T.S.</u> <u>Infix</u>	<u>Suffix</u>	<u>Example</u>	<u>Meaning</u>
11	ɔ́lǎǎɔ́	-a	a.ɔ́lǎǎ.sola	'he will choose' (distant future)
12	ɔ́kaɔ́	-aga	a.ɔ́ka.solaga	'he habitually chooses'
13	Singular Plural	-aga + h ³ -agi + h ³	solaga + h solagi + h	'choose!' (Imperative Singular and Plural)
14	-	-e + h ³	asóle + h	'let him choose' 'that he may choose' (Dependent or Subjunctive Tense)
15	ku-(= Cl.15) (I.P.)	-a	kusola	'to choose' (Independent Nomino-Verbal)
16	ɔ́laaɔ́	-e	a.ɔ́laa.sole + h	'if he chooses' (near future)
17	ɔ́lǎǎɔ́	-aga	a.ɔ́lǎǎ.solaga	'if he should choose' (distant future)
18	-aka-	-aga	uakasóлага	'he has gone to choose'
19	-aka- ɔ́akaɔ́	-aga ¹ -aga ²	uakasolaga + h ɔ́bááka.solaga + h	'he used to go choosing' 'they used to go choosing'
20	ɔ́úɔ́	-a	ɔ́úú.sola	'.... and he chose' (Narrative Tense)
21	-ta-	ɔ́ilé.	atasóɔ́ilé.	Negative of Tenses 1, 3, 4, 7, 9, 10.
22	-ta-	-aga	atasóлага + h	'he never chooses'
23	ɔ́takáɔ́	ɔ́ilé.	ɔ́takásolilé.	'he has not gone to <u>choose</u> '

1. These tonal characteristics appear only when the D.V.P. is in Classes 1, 4 or 9.
2. Applicable only when the D.V.P. is in a class other than 1, 4 or 9.
3. The tonal behaviour of this tense is unamenable to systematisation.